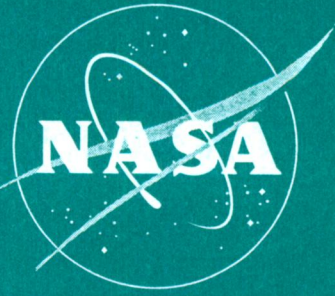


NASA-TM-109,719

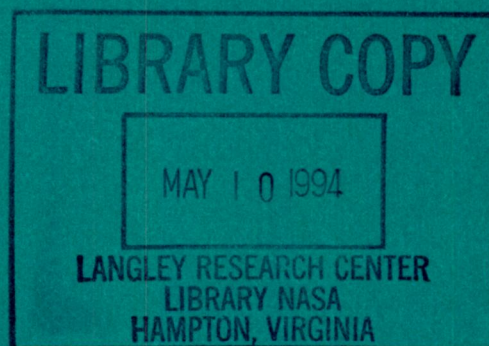
NASA TM-109719



NASA-TM-109719 19940022910

# UNIVERSITY PROGRAM MANAGEMENT INFORMATION SYSTEM

FY 1993



Prepared by:

Office of Human Resources and Education  
Education Division  
Technology and Evaluation Branch/FET

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## **IMPORTANT NOTICE**

This report is compiled primarily from information obtained from two internal NASA sources:

1. "CASE Report on Support of Colleges and Universities" (NASA Form 1356).
2. "Individual Procurement Action Report" (NASA Form 507).

Therefore, other sources should be used for completing Forms 507 and 1356.





**NASA's UNIVERSITY PROGRAM**

**ACTIVE PROJECTS**

**FISCAL YEAR 1993**

**National Aeronautics and Space Administration  
Office of Human Resources and Education  
Education Division  
Technology and Evaluation Branch/FET  
Washington, DC 20546-0001**



## FOREWORD

As basic policy, NASA believes that colleges and universities should be encouraged to participate in the nation's space and aeronautics program to the maximum extent practicable. Indeed, universities are considered as partners with government and industry in the nation's aerospace program. NASA's objective is to have them bring their scientific, engineering, and social research competence to bear on aerospace problems and on the broader social, economic, and international implications of NASA's technical and scientific programs. It is expected that, in so doing, universities will strengthen both their research and their educational capabilities to contribute more effectively to the national well-being.

NASA field centers and certain Headquarters program offices provide funds for those R&D activities in universities which contribute to the mission needs of that particular NASA element. Although NASA has no predetermined amount of money to devote to university activities, the effort funded each year is substantial. (See the bar chart on the next page). This annual report is one means of documenting the NASA-university relationship, frequently denoted, collectively, as NASA's University Program.

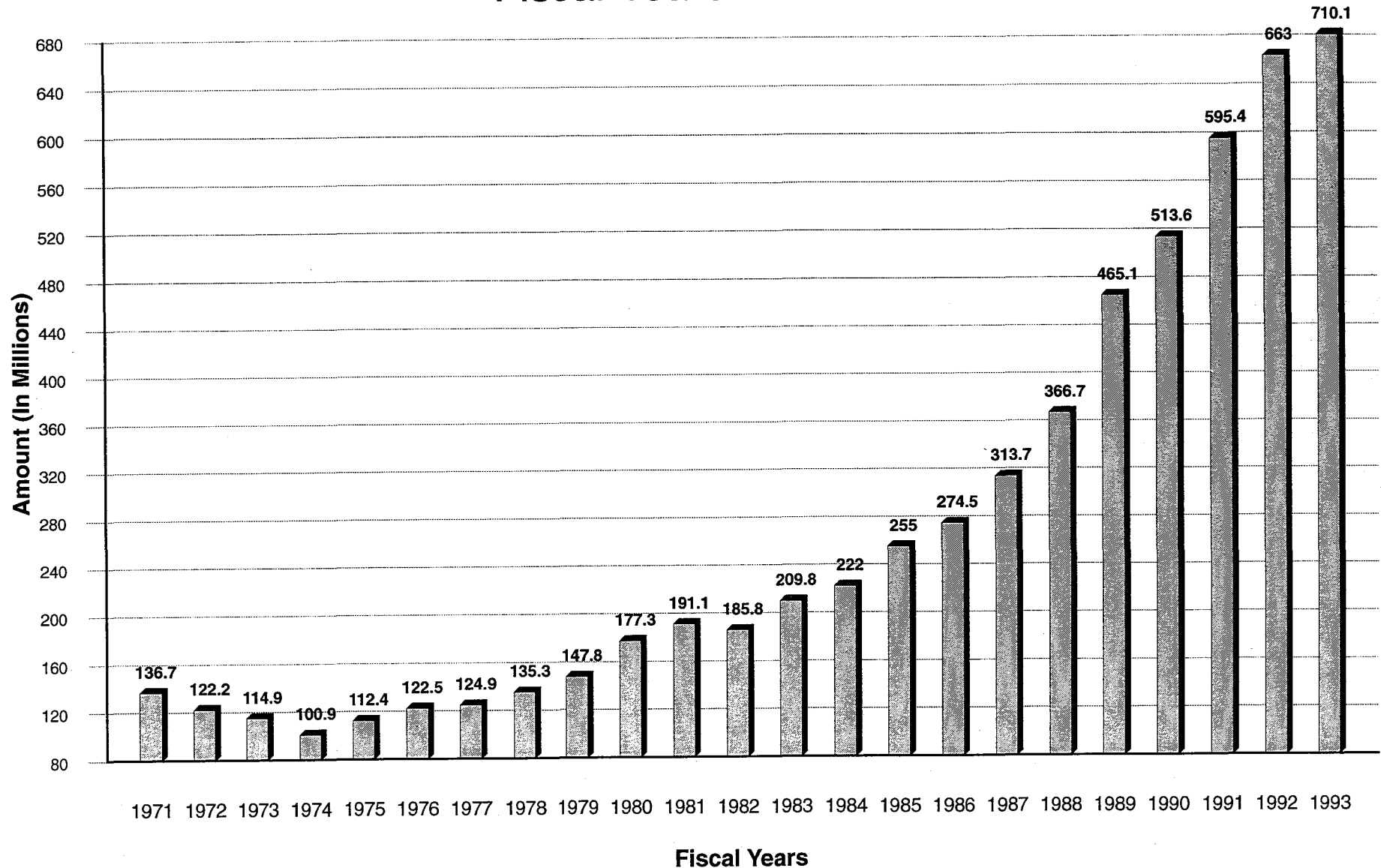
This report is consistent with agency accounting records, as the data is obtained from NASA's Financial and Contractual Status (FACS) System, operated by the Financial Management Division and the Procurement Office. However, in accordance with interagency agreements, the orientation differs from that required for financial or procurement purposes. Any apparent discrepancies between this report and other NASA procurement or financial reports stem from the selection criteria for the data.\*

The report was prepared by Technology and Evaluation Branch/FET, Education Division, Office of Human Resources and Education, using a management information system which was modernized during FY 1993.

\* Agreements which meet active criteria definition and have deobligations may result in agreements having negative obligations in the body of this publication.

# NASA Obligations to Universities

Fiscal Years 1971-1993



NOTE: Excludes awards to California Institute of Technology for operation of the Jet Propulsion Laboratory.

FY 1971 includes \$15.0M in awards to Draper Lab.  
FY 1972 includes \$5.7M in awards to Draper Lab.

FY 1973 includes \$5.2M in awards to Draper Lab.  
FY 1974 Draper Lab status changed from "university" to "nonprofit."



# FIFTY EDUCATIONAL INSTITUTIONS LISTED ACCORDING TO TOTAL OBLIGATIONS FISCAL YEAR 1993

INSTITUTION		OBLIGATIONS (THOUSANDS)	PERCENT
		<b>\$710,151</b>	<b>100.00</b>
1	Stanford University .....	55,342 .....	7.79
2	Massachusetts Institute of Technology .....	39,094 .....	5.50
3	Wheeling Jesuit College .....	23,559 .....	3.31
4	University of California at Berkeley .....	22,805 .....	3.21
5	Nex Mexico State University at Las Cruces .....	21,752 .....	3.06
6	University of Arizona .....	21,723 .....	3.05
7	University of Alaska at Fairbanks .....	20,061 .....	2.82
8	University of Maryland at College Park .....	17,772 .....	2.50
9	University of Colorado at Boulder .....	17,312 .....	2.43
10	University of California at San Diego .....	16,755 .....	2.35
11	University of Alabama at Huntsville .....	14,689 .....	2.06
12	California Institute of Technology * .....	14,090 .....	1.98
13	Pennsylvania State University at University Park .....	13,636 .....	1.92
14	University of Michigan at Ann Arbor .....	11,360 .....	1.59
15	University of Wisconsin at Madison .....	11,098 .....	1.56
16	University of New Hampshire at Durham .....	10,462 .....	1.47
17	West Virginia University .....	10,410 .....	1.46
18	Johns Hopkins University .....	10,167 .....	1.43
19	University of Texas at Austin .....	9,703 .....	1.36
20	University of Washington .....	9,541 .....	1.34
21	University of Hawaii at Manoa .....	9,305 .....	1.31
22	University of California at Los Angeles .....	9,114 .....	1.28
23	University of Virginia .....	8,526 .....	1.20
24	Cornell University .....	8,133 .....	1.14
25	Georgia Institute of Technology .....	7,509 .....	1.05
26	San Jose State University .....	7,284 .....	1.02
27	Oklahoma State University .....	7,125 .....	1.00
28	University of Houston .....	6,848 .....	0.96
29	Case Western Reserve .....	6,709 .....	0.94
30	Columbia University .....	6,644 .....	0.93
31	Harvard University .....	6,538 .....	0.92
32	University of Chicago .....	6,440 .....	0.90
33	University of Houston at Clear Lake .....	5,930 .....	0.83
34	University of Iowa .....	5,484 .....	0.77
35	Old Dominion University .....	5,400 .....	0.76
36	University of Southern California .....	4,739 .....	0.66
37	University of Alabama at Birmingham .....	4,622 .....	0.65
38	Ohio State University .....	4,544 .....	0.63
39	Texas A&M University .....	4,539 .....	0.63
40	Florida Atlantic University .....	4,516 .....	0.63
41	University of Florida .....	4,454 .....	0.62
42	Princeton University .....	4,423 .....	0.62
43	Virginia Polytechnic Institute .....	4,421 .....	0.62
44	University of California at Santa Barbara .....	4,119 .....	0.58
45	Washington University .....	4,053 .....	0.57
46	Carnegie-Mellon University .....	4,012 .....	0.56
47	University of New Mexico .....	3,867 .....	0.54
48	Auburn University at Auburn .....	3,764 .....	0.53
49	University of Minnesota at St. Paul .....	3,684 .....	0.51
50	University of Illinois at Urbana .....	3,666 .....	0.51
Other Colleges and Universities ** .....		168,405 .....	23.71

\* Excludes awards to California Institute of Technology for operation of the Jet Propulsion Laboratory.

\*\* Includes both foreign and domestic universities and colleges.

# STATE AND U.S. TERRITORIES BY OBLIGATIONS

## FISCAL YEAR 1993 (October 1 through September 30, 1993)

STATE		OBLIGATIONS (WHOLE DOLLARS)	PERCENT
		<b>\$707,846,041</b>	<b>100.00</b>
1	California .....	146,628,596 .....	20.71
2	Massachusetts .....	50,842,593 .....	7.18
3	Texas .....	40,534,401 .....	5.72
4	West Virginia .....	34,168,558 .....	4.82
5	Maryland .....	29,405,011 .....	4.15
6	New York .....	27,506,759 .....	3.88
7	New Mexico .....	25,894,530 .....	3.65
8	Alabama .....	25,838,928 .....	3.65
9	Virginia .....	25,221,684 .....	3.56
10	Arizona .....	24,497,979 .....	3.46
11	Ohio .....	23,743,934 .....	3.35
12	Colorado .....	22,249,848 .....	3.14
13	Pennsylvania .....	21,724,433 .....	3.06
14	Florida .....	20,737,896 .....	2.92
15	Alaska .....	20,060,565 .....	2.83
16	Georgia .....	13,827,226 .....	1.95
17	Michigan .....	13,328,685 .....	1.88
18	Wisconsin .....	12,517,096 .....	1.76
19	Illinois .....	12,403,739 .....	1.75
20	New Hampshire .....	11,421,254 .....	1.61
21	Washington .....	10,202,261 .....	1.44
22	Hawaii .....	9,304,589 .....	1.31
23	District of Columbia .....	8,294,342 .....	1.17
24	Oklahoma .....	7,719,092 .....	1.09
25	North Carolina .....	7,208,125 .....	1.01
26	Iowa .....	7,111,982 .....	1.00
27	New Jersey .....	6,861,988 .....	0.96
28	Tennessee .....	5,519,072 .....	0.77
29	Missouri .....	4,788,566 .....	0.67
30	Indiana .....	4,672,910 .....	0.66
31	Minnesota .....	3,881,729 .....	0.54
32	Utah .....	3,819,081 .....	0.53
33	Oregon .....	3,811,619 .....	0.53
34	Rhode Island .....	3,481,291 .....	0.49
35	Kansas .....	2,434,602 .....	0.34
36	Louisiana .....	2,368,398 .....	0.33
37	Mississippi .....	2,043,806 .....	0.28
38	Connecticut .....	1,812,237 .....	0.25
39	South Carolina .....	1,527,882 .....	0.21
40	Delaware .....	1,408,282 .....	0.19
41	Montana .....	1,122,008 .....	0.15
42	Nebraska .....	1,099,140 .....	0.15
43	Puerto Rico .....	987,169 .....	0.13
44	South Dakota .....	898,307 .....	0.12
45	Kentucky .....	868,694 .....	0.12
46	Nevada .....	746,266 .....	0.10
47	Wyoming .....	548,228 .....	0.07
48	Arkansas .....	478,410 .....	0.06
49	North Dakota .....	260,003 .....	0.03
50	Vermont .....	235,489 .....	0.03
51	Maine .....	175,864 .....	0.02
52	Idaho .....	-400,106 .....	-0.05

\* Starting in FY1993, Active Actions with deobligations will be reported in this chart.



# RESEARCH AND DEVELOPMENT PERCENT CHANGE REPORT 1989-1993 \*

FIELDS OF SCIENCE	FY 1993	% CHANGE	FY 1992	% CHANGE	FY 1991	% CHANGE	FY 1990	% CHANGE	FY 1989
	(\$1000)	FY 92-93	(\$1000)	FY 91-92	(\$1000)	FY 90-91	(\$1000)	FY 89-90	(\$1000)
<b>ALL FIELDS TOTAL</b>	615,051	4.90%	586,299	9.85%	533,750	13.38%	470,746	8.55%	433,665
<b>Physical Sciences, Total</b>	<b>243,353</b>	<b>5.78%</b>	<b>230,052</b>	<b>20.48%</b>	<b>190,945</b>	<b>12.27%</b>	<b>170,084</b>	<b>8.91%</b>	<b>156,164</b>
Astronomy	105,123	-6.87%	112,878	34.01%	84,230	20.40%	69,956	-1.20%	70,804
Chemistry	6,424	22.64%	5,238	-7.91%	5,688	-4.84%	5,977	14.61%	5,215
Physics	107,634	16.37%	92,490	11.94%	82,624	2.32%	80,751	22.74%	65,788
Physical Sciences, NEC **	24,172	24.30%	19,446	5.67%	18,403	37.34%	13,400	-6.67%	14,357
<b>Mathematical &amp; Computer Sciences, Total</b>	<b>26,412</b>	<b>23.26%</b>	<b>21,428</b>	<b>-16.20%</b>	<b>25,569</b>	<b>-6.85%</b>	<b>27,449</b>	<b>-1.11%</b>	<b>27,757</b>
Mathematics	683	-21.76%	873	40.13%	623	-37.01%	989	-0.90%	998
Computer Sciences	19,411	6.58%	18,213	-17.47%	22,069	-8.73%	24,181	-1.58%	24,568
Math. & Computer Sciences, NEC	6,318	169.77%	2,342	-18.60%	2,877	26.24%	2,279	4.02%	2,191
<b>Environmental Sciences, Total</b>	<b>133,399</b>	<b>-3.54%</b>	<b>138,290</b>	<b>10.29%</b>	<b>125,383</b>	<b>25.45%</b>	<b>99,944</b>	<b>9.95%</b>	<b>90,901</b>
Atmospheric Sciences	54,786	-14.29%	63,918	22.13%	52,334	14.26%	45,804	0.17%	45,727
Geological Sciences	24,544	6.99%	22,941	3.50%	22,166	17.77%	18,822	-1.17%	19,044
Oceanography	13,308	-22.82%	17,242	91.09%	9,023	3.50%	8,718	58.83%	5,489
Environmental Sciences, NEC	40,761	19.22%	34,189	-18.33%	41,860	57.37%	26,600	28.87%	20,641
<b>Engineering Total</b>	<b>127,621</b>	<b>-0.11%</b>	<b>127,757</b>	<b>-2.00%</b>	<b>130,360</b>	<b>7.42%</b>	<b>121,350</b>	<b>6.63%</b>	<b>113,808</b>
Aeronautical	46,172	16.85%	39,513	-7.55%	42,738	-4.98%	44,980	11.61%	40,301
Astronautical	13,254	-37.61%	21,244	2.28%	20,770	77.93%	11,673	18.38%	9,861
Chemical	2,545	43.22%	1,777	-20.42%	2,233	1.04%	2,210	18.50%	1,865
Civil	180	11.11%	162	-55.00%	360	138.41%	151	65.93%	91
Electrical	8,633	15.01%	7,506	-25.32%	10,051	13.06%	8,890	-3.43%	9,206
Mechanical	11,704	11.47%	10,500	-9.27%	11,573	20.80%	9,580	-2.97%	9,873
Metallurgy and Materials	20,804	6.97%	19,448	-4.50%	20,365	7.54%	18,938	25.41%	15,101
Engineering, NEC	24,329	-11.87%	27,607	23.96%	22,270	-10.66%	24,928	-9.39%	27,510
<b>Life Sciences, Total</b>	<b>45,090</b>	<b>6.29%</b>	<b>42,420</b>	<b>4.99%</b>	<b>40,405</b>	<b>28.75%</b>	<b>31,383</b>	<b>14.59%</b>	<b>27,387</b>
<b>Biological, Total</b>	<b>28,077</b>	<b>1.62%</b>	<b>27,629</b>	<b>-0.16%</b>	<b>27,672</b>	<b>36.19%</b>	<b>20,318</b>	<b>15.38%</b>	<b>17,610</b>
Biol. Sciences (Excluding Envir. Bio.)	26,199	6.91%	24,505	-3.02%	25,267	46.93%	17,197	12.34%	15,308
Environmental Biology	1,359	-42.37%	2,358	23.26%	1,913	-24.60%	2,537	34.30%	1,889
Agricultural Sciences	519	-32.25%	766	55.69%	492	-15.75%	584	41.40%	413
Medical Sciences	7,844	31.13%	5,982	5.97%	5,645	-9.16%	6,214	9.29%	5,686
Life Sciences, NEC	9,169	4.09%	8,809	24.28%	7,088	46.11%	4,851	18.58%	4,091
<b>Psychology Total</b>	<b>4,328</b>	<b>4.97%</b>	<b>4,123</b>	<b>62.13%</b>	<b>2,543</b>	<b>-33.83%</b>	<b>3,843</b>	<b>20.96%</b>	<b>3,177</b>
Biological Aspects	62	55.00%	40	-43.66%	71	-16.47%	85	1.19%	84
Social Aspects	493	-8.70%	540	-10.45%	603	-36.53%	950	12.29%	846
Psychological Sciences, NEC	3,773	6.49%	3,543	89.57%	1,869	-33.44%	2,808	24.97%	2,247
<b>Social Sciences, Total</b>	<b>386</b>	<b>124.42%</b>	<b>172</b>	<b>4.24%</b>	<b>165</b>	<b>96.43%</b>	<b>84</b>	<b>29.23%</b>	<b>65</b>
Economics	55	-58.33%	132	76.00%	75	0.00%	0	0.00%	0
History	0	0.00%	0	0.00%	0	0.00%	0	-100.00%	27
Political Science	0	0.00%	0	0.00%	0	0.00%	0	-100.00%	25
Social Sciences, NEC	331	727.50%	40	-55.56%	90	7.14%	84	546.15%	13
<b>Other Sciences, NEC</b>	<b>34,462</b>	<b>56.24%</b>	<b>22,057</b>	<b>20.01%</b>	<b>18,380</b>	<b>10.66%</b>	<b>16,609</b>	<b>15.29%</b>	<b>14,406</b>

Table does not include awards to foreign universities or awards to California Institute of Technology for operation of the Jet Propulsion Laboratories.

\* This report does not include other activities related to science and engineering, R&D plant and equipment, nor training grants. \*\* NEC means Not Elsewhere Classified.

\* This chart does not include agreements with Fiscal Year obligations less than zero.





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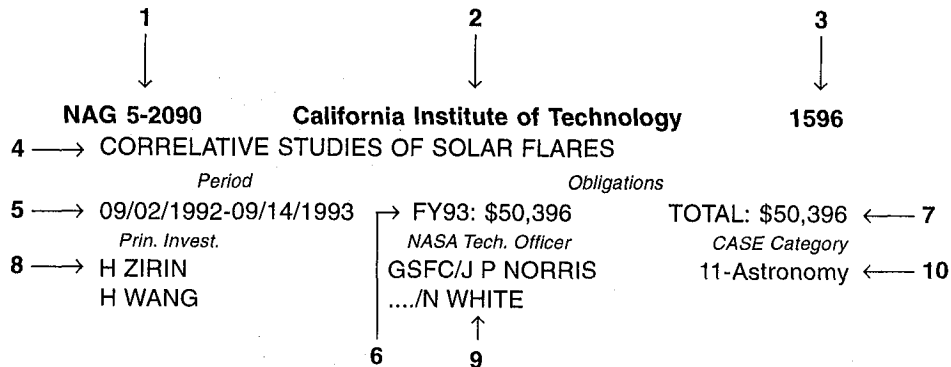
This report includes data on projects active during Fiscal Year 1993.

Alabama .....	1	Montana .....	301
Alaska .....	14	Nebraska .....	302
Arizona .....	17	Nevada .....	304
Arkansas .....	38	New Hampshire .....	305
California .....	39	New Jersey .....	312
Colorado .....	118	New Mexico .....	319
Connecticut .....	142	New York .....	325
Delaware .....	145	North Carolina .....	353
District of Columbia .....	146	North Dakota .....	362
Florida .....	152	Ohio .....	362
Georgia .....	167	Oklahoma .....	391
Hawaii .....	177	Oregon .....	393
Idaho .....	183	Pennsylvania .....	397
Illinois .....	184	Rhode Island .....	416
Indiana .....	201	South Carolina .....	420
Iowa .....	209	South Dakota .....	424
Kansas .....	216	Tennessee .....	424
Kentucky .....	219	Texas .....	431
Louisiana .....	221	Utah .....	464
Maine .....	224	Vermont .....	467
Maryland .....	225	Virginia .....	468
Massachusetts .....	246	Washington .....	492
Michigan .....	275	West Virginia .....	503
Minnesota .....	288	Wisconsin .....	505
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# USER'S GUIDE

The University Program Report provides current information and related statistics for each grant/contract/cooperative agreement active during the report period. The following guidance is provided as an aid to the reader in readily locating material of interest and in optimizing the use of this document.

## I. Typical Citation



### Key

1. Agreement Number\*
2. Institution Name
3. Accession Number
4. Brief work description
5. Approximate period of performance
6. Amount (if any) actually provided the indicated fiscal year
7. Total amount actually provided during the indicated period of performance
8. Principal Investigator(s) at the educational institution
9. NASA Technical Officer(s) and organizational location
10. CASE Field of Science and Engineering code and name

\* Uniquely identifies project. Prefixes denote type of instrument as follows:

Grants  
Cooperative Agreements  
Contracts  
Space Act Agreements  
NAG, NAGW, NGF, NGT, NGL, NGR, NSG  
NCC, NCCW  
DEN, NAS, NASR, NASW, NSR  
NCA

## II. NASA Installations

NASA installations are included in the citation as abbreviations (item 9). The following listing of installations will be useful to those desiring further information on specific projects.

Mr. Gary Gans Code FET NASA Headquarters Washington, DC 20546 (202) 358-1540	HQ	Mr. Edwin J. Prior Mail Stop 400 Langley Research Center Hampton, VA 23665 (804) 864-6058	LARC
Ms. Barbara Hastings Mail Stop 241-1 Ames Research Center Moffett Field, CA 94035 (415) 604-5802	ARC	Dr. Francis J. Montegani Mail Stop CP-1 Lewis Research Center 21000 Brookpark Road Cleveland, OH 44135 (216) 433-2956	LERC
Dr. Gerald Soffen Code 160 Goddard Space Flight Center Greenbelt, MD 20771 (301) 286-9690	GSFC	Dr. Frank Six Mail Stop DS01 George C. Marshall Space Flight Center Huntsville, AL 35812 (205) 544-0997	MSFC
Dr. Stanley H. Goldstein Mail Code AHU Lyndon B. Johnson Space Center Houston, TX 77058 (713) 483-4724	JSC	Dr. Armond Joyce Science and Technology Branch Mail Stop MAOO John C. Stennis Space Center Stennis Space Center, MS 39529 (601) 688-3830	SSC
Mr. Bill Martin Mail Stop PT-PAS Kennedy Space Center Kennedy Space Center, FL 32899 (407) 867-7952	KSC		

The abbreviation for NASA Headquarters, HQ, usually carries a suffix, for example HQ-SB, which denotes a particular office code and general area of responsibility. A full listing of the suffix letters and information on NASA's organizational structure may be found in the NASA Headquarters Telephone Directory. (The Directory is for sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.)

### **III. CASE Fields of Science and Engineering**

The National Science Foundation (NSF) operates a government-wide system (CASE) for collecting and analyzing data on support to colleges and universities. Participating agencies report annually to NSF which in turn issues *Support to Universities, Colleges and Selected Nonprofit Institutions*. The CASE fields, used in the extensive tabulations contained in that document, form the only consistent classification system for government sponsored research. The fields are listed in full in the Appendix.

### **IV. Cross-Index**

The cross-indexed Appendix provides rapid access to all projects in a particular area of endeavor, as defined by the CASE fields. This listing is also easily used to determine the institutions and principal investigators conducting NASA projects in a field. Entries are related to the citations (descriptions) by the accession number (item 3). The accession number has meaning only in this report; it is in no way permanently associated with nor does it uniquely identify a specific grant/contract/cooperative agreement anywhere except in the present report. Accession numbers are assigned sequentially to the citations, beginning with 1000. Thus, when an entry of interest is identified in the Appendix, the associated accession number allows ready location of the full description in the body of the report.



# NASA'S UNIVERSITY PROGRAM

## ALABAMA

**NAG 3-1408 Alabama A&M University 1000**  
 INTEGRATED OPTICS IN THIN FILMS OF POLYMERS AND ORGANIC MATERIALS

<i>Period</i>	<i>Obligations</i>	
01/13/1993-01/07/1994	FY93: \$300,000	TOTAL: \$300,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
H A ABDELDAYEM	LERC/G T SENG	13-Physics
P VENKATESWARLU	....G M BEHEIM	

**NAG 3-1429 Alabama A&M University 1001**  
 DIRECT OBSERVATION OF CRYSTAL GROWTH FROM SOLUTION USING OPTICAL INVESTIGATION OF A GROWING CRYSTAL FACE

<i>Period</i>	<i>Obligations</i>	
01/07/1993-12/23/1993	FY93: \$162,354	TOTAL: \$162,354
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
R B LAL	LERC/T GLASGOW	47-Materials Engr

**NAG 8-23 Alabama A&M University 1002**  
 RESEARCH AND TRAINING IN INTELLIGENT ROBOTIC SYSTEMS

<i>Period</i>	<i>Obligations</i>	
02/09/1984-01/24/1992	FY93: \$34,036	TOTAL: \$622,307
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
G J HURFORD	MSFC/J L RANDALL	46-Mech Engr
T A PRINCE	....R J WALKER	
M BORELLI		

**NAG 8-97 Alabama A&M University 1003**  
 GRANT ENTITLED 'MECHANISM OF CHROMOSOMAL ABERRATION PRODUCTION IN REPAIR DEFICIENT HUMAN CELLS.'

<i>Period</i>	<i>Obligations</i>	
01/28/1988-06/24/1994	FY93: \$0	TOTAL: \$277,492
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
R KALE	MSFC/J L RANDALL	59-Life Sci, NEC
	....R J WALKER	

**NAG 8-107 Alabama A&M University 1004**  
 NONLINEAR PROPERTIES OF ORGANIC MATERIALS IN LEAD AND TIN FLUOROPHOSPHATE GLASS AND THIN FILMS POLYMER

<i>Period</i>	<i>Obligations</i>	
08/22/1988-06/08/1993	FY93: \$0	TOTAL: \$746,794
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
M C GEORGE	MSFC/J L RANDALL	13-Physics
	....R J WALKER	

**NAG 8-115 Alabama A&M University 1005**  
 RUTHERFORD SCATTERING SPECTROSCOPY AND NUCLEAR REACTION ANALYSIS.

<i>Period</i>	<i>Obligations</i>	
12/09/1988-03/24/1993	FY93: \$1,119	TOTAL: \$589,055
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
D ILA	MSFC/J L RANDALL	51-Biological Sci
L HOLLAND		

**NAG 8-125 Alabama A&M University 1006**  
 GROWTH CHARACTERISTICS OF ORGANIC CRYSTALS FOR NON-LINEAR OPTICAL APPLICATIONS

<i>Period</i>	<i>Obligations</i>	
04/24/1989-01/09/1993	FY93: \$0	TOTAL: \$270,558
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
M D AGGARWAL	MSFC/J L RANDALL	13-Physics
	....R J WALKER	

**NAG 8-163 Alabama A&M University 1007**  
 ATMOSPHERIC EFFECTS ON COHERENT LASER SYSTEM

<i>Period</i>	<i>Obligations</i>	
05/11/1990-05/20/1993	FY93: \$0	TOTAL: \$137,791
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
S R MURTY	MSFC/G H FICHTL	13-Physics
	....W JONES	

**NAG 8-173 Alabama A&M University 1008**  
 ELLIPSOIDAL MEASUREMENT OF LIQUID FILM THICKNESS

<i>Period</i>	<i>Obligations</i>	
09/21/1990-06/17/1993	FY93: \$0	TOTAL: \$145,544
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
K J CHANG	MSFC/G FICHTL	13-Physics

**NAG 8-198 Alabama A&M University 1009**  
 BIOLOGICAL PATTERNS AS NOVEL INDICATORS FOR PHARMACOLOGICAL STUDIES

<i>Period</i>	<i>Obligations</i>	
08/21/1991-06/12/1993	FY93: \$0	TOTAL: \$37,646
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
J JOHNSON	MSFC/H MATSOS	51-Biological Sci
	....E M STRAUSS	

**NAG 8-200 Alabama A&M University 1010**  
 REGULARIZED TIME SERIES DISCRIMINANT ANALYSIS

<i>Period</i>	<i>Obligations</i>	
08/20/1991-08/19/1994	FY93: \$58,254	TOTAL: \$115,506
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
E C TEMPLE	MSFC/G H FICHTL	29-Math/Computer, NEC
	....R J WALKER	

**NAG 8-201 Alabama A&M University 1011**  
 NUMERICAL INVESTIGATIONS IN THE BACKFLOW REGION OF A VACUUM PLUME

<i>Period</i>	<i>Obligations</i>	
08/30/1991-08/27/1993	FY93: \$0	TOTAL: \$109,831
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
LIAU	MSFC/G FICHTL	31-Atmos Sci

**NAG 8-203 Alabama A&M University 1012**  
 EFFECT OF HYDROGEN ON Ni BASED SUPERALLOYS

<i>Period</i>	<i>Obligations</i>	
12/16/1991-06/15/1993	FY93: \$0	TOTAL: \$158,416
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
R B LAL	MSFC/G H FICHTL	13-Physics
M D AGGARWAL		

**NAG 8-204 Alabama A&M University 1013**  
 DETERMINATION OF TRACE ELEMENTS IN TRYPTOPHAN METABOLISM SOLUTIONS

<i>Period</i>	<i>Obligations</i>	
09/25/1991-03/24/1993	FY93: \$0	TOTAL: \$89,048
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
S TADROS	MSFC/G FICHTL	12-Chemistry

**NAG 8-236 Alabama A&M University 1014**  
 RESEARCH

<i>Period</i>	<i>Obligations</i>	
04/13/1992-04/12/1993	FY93: \$0	TOTAL: \$103,056
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
C W LOWE	MSFC/G H FICHTL	19-Phys Sci, NEC

**NASA'S UNIVERSITY PROGRAM**  
**ALABAMA (Continued)**

**NAG 8-241** **Alabama A&M University** **1015**  
 THE SEARCH FOR COMPUTER REAL INTELLIGENCE  
*Period* *Obligations*  
 07/02/1992-12/31/1992 FY93: \$4,240 TOTAL: \$9,726  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 J CAUFIELD MSFC/R WALKER 22-Computer Science

**NCC 8-27** **Alabama A&M University** **1022**  
 CHARACTERIZATION OF ORGANIC SPHERICAL POLYMER-DYE  
 LASER MATERIALS AND THEIR LASER ACTION  
*Period* *Obligations*  
 09/07/1993-09/06/1994 FY93: \$54,407 TOTAL: \$54,407  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 P VENKATESWARLU MSFC/G H FICHTL 13-Physics  
 ....R J WALKER

**NAG 8-251** **Alabama A&M University** **1016**  
 CRYSTAL RESEARCH  
*Period* *Obligations*  
 12/28/1992-12/27/1993 FY93: \$134,797 TOTAL: \$134,797  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 R B LAL MSFC/G A FICHTL 13-Physics  
 A K BATRA

**NAG 1-1329** **Auburn University** **1023**  
 DUPLICATION AND ANALYSIS OF MICROMETEOROID DAMAGE ON  
 LDEF  
*Period* *Obligations*  
 08/12/1991-12/31/1993 FY93: \$75,000 TOTAL: \$234,715  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 M F ROSE LARC/J L JONES 39-Env Sci, NEC  
 ....W H KINARD

**NAG 8-907** **Alabama A&M University** **1017**  
 FEASIBILITY STUDY  
*Period* *Obligations*  
 03/19/1992-03/31/1993 FY93: \$0 TOTAL: \$43,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 P VENKATESWARLU MSFC/K R TAYLOR 13-Physics

**NAG 1-1467** **Auburn University** **1024**  
 COMPUTATIONAL AEROACOUSTICS ANALYSIS OF DISSIPATIVE  
 DUCTS NLPN 92-921  
*Period* *Obligations*  
 03/02/1993-03/01/1994 FY93: \$55,063 TOTAL: \$55,063  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 M J CROCKER LARC/W R WATSON 41-Aero Engr  
 ....F FARASSAT

**NAG 9-246** **Alabama A&M University** **1018**  
 GENETIC EFFECTS HEAVY IONS IN DROSOPHILA  
*Period* *Obligations*  
 07/01/1987-12/01/1993 FY93: \$0 TOTAL: \$305,265  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 P KALE JSC/D S NACHTWEY 51-Biological Sci

**NAG 3-1055** **Auburn University** **1025**  
 SYSTEM ANALYSIS OF ENERGY MANAGEMENT FOR LUNAR FAC  
 ILITIES  
*Period* *Obligations*  
 07/19/1989-09/30/1992 FY93: \$1,134 TOTAL: \$104,744  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 L B GORDON LERC/R L CATALDO 45-Elec Engr  
 M F ROSE

**NAS 8-36634** **Alabama A&M University** **1019**  
 STUDY ENTITLED 'SOLUTION CRYSTAL GROWTH IN  
 LOW-GRAVITY.'  
*Period* *Obligations*  
 09/25/1986-10/31/1993 FY93: \$79,975 TOTAL: \$1,529,975  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 R B LAL MSFC/R C RUFF 51-Biological Sci

**NAG 3-1154** **Auburn University** **1026**  
 HIGH PERFORMANCE ELECTROCHEMICAL SYSTEMS UTILIZING  
 COMPOSITE ELECTRODE STRUCTURES  
*Period* *Obligations*  
 03/22/1990-01/24/1994 FY93: \$93,000 TOTAL: \$333,250  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 B J TATARCHUK LERC/D L BRITTON 43-Chem Engr  
 ....M A REID

**NCC 2-501** **Alabama A&M University** **1020**  
 CHARACTERIZATION OF SPIRULINA BIOMASS FOR CELSS  
 DIPOTENTIAL  
*Period* *Obligations*  
 11/01/1987-02/29/1992 FY93: \$0 TOTAL: \$266,126  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 M TADROS ARC/R D MACELROY 51-Biological Sci

**NAG 3-1330** **Auburn University** **1027**  
 HIGH VOLTAGE TRANSMISSION LINE OPERATION IN SIMULA TION  
 LUNAR AND MARTIAN ENVIRONEMENTS  
*Period* *Obligations*  
 03/06/1992-02/12/1993 FY93: \$0 TOTAL: \$80,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 M F ROSE LERC/R L CATALDO 45-Elec Engr

**NCC 2-607** **Alabama A&M University** **1021**  
 DEMONSTRATE PRODUCTION OF SALAD CROPS IN THE SPAC E  
 STATION MOCKUP FACILITY WITH PARTICULAR ...  
*Period* *Obligations*  
 05/11/1989-12/31/1992 FY93: \$0 TOTAL: \$292,411  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 C BROOKS ARC/R D MACELROY 54-Env Biology  
 G C SHAMA  
 J F LOGAN

**NAG 3-1507** **Auburn University** **1028**  
 INFLUENCE OF BACKUP BEARINGS AND SUPPORT STRUCTURE D  
 YNAMICS ON THE BEHAVIOR OF ROTORS WITH ACTIVE SUP  
*Period* *Obligations*  
 06/29/1993-06/17/1994 FY93: \$48,273 TOTAL: \$48,273  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 G T FLOWERS LERC/C LAWRENCE 41-Aero Engr

**NASA'S UNIVERSITY PROGRAM**  
**ALABAMA (Continued)**

**NAG 8-147 Auburn University 1029**  
 JOVE  
*Period Obligations*  
 03/23/1990-04/25/1994 FY93: \$16,125 TOTAL: \$110,666  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J D PEREZ MSFC/C R CHAPPELL 31-Atmos Sci  
 ....N F SIX

**NAS 5-30759 Auburn University 1037**  
 GAMMA-RAY IMAGING DEVICE ON A BALLON  
*Period Obligations*  
 02/22/1990-09/30/1993 FY93: \$39,320 TOTAL: \$318,304  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 L GREENE GSFC/C CRANNELL 19-Phys Sci, NEC

**NAG 8-188 Auburn University 1030**  
 HYDROGEN INDUCED FRACTURE CHARACTERISTICS OF  
 NICKEL-BASED SUPERALLOYS  
*Period Obligations*  
 05/15/1991-02/14/1993 FY93: \$0 TOTAL: \$50,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R C WILCOX MSFC/S J GENTZ 47-Materials Engr

**NAS 8-37823 Auburn University 1038**  
 FRAGMENTATION AND ENERGY LOSS ON HIGH SPEED IMPACT  
*Period Obligations*  
 08/28/1991-07/17/1992 FY93: \$0 TOTAL: \$89,957  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R ZEE MSFC/R A TAYLOR 13-Physics

**NAG 8-683 Auburn University 1031**  
 GRANT ENTITLED 'DEVELOPMENT OF A NEW GENERATION SOLID  
 ROCKET MOTOR IGNITION COMPUTER CODE.'  
*Period Obligations*  
 11/13/1987-01/02/1993 FY93: \$0 TOTAL: \$299,740  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 W A FOSTER MSFC/J E HENGEL 49-Engr, NEC  
 R M JENKINS ....C L MARTIN

**NAS 8-39131 Auburn University 1039**  
 ESSENTIAL ENGINEERING SERVICES RESEARCH AND DEVELOPM  
 CAPABILITY  
*Period Obligations*  
 04/26/1991-04/25/1996 FY93: \$418,917 TOTAL: \$942,178  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J OWEN MSFC/L J SMITH 99-Multi-Discip  
 ....D HIPP

**NAG 8-808 Auburn University 1032**  
 DESIGN OF THE GATE-TDE  
*Period Obligations*  
 01/09/1990-09/30/1993 FY93: \$0 TOTAL: \$105,481  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M E GREENE MSFC/C C RUPP 41-Aero Engr

**NCC 3-175 Auburn University 1040**  
 SILICON DEVICE PERFORMANCE MEASUREMENTS TO SUPPORT  
 TEMPERATURE RANGE ENHANCEMENT  
*Period Obligations*  
 06/05/1990-12/31/1993 FY93: \$15,000 TOTAL: \$175,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R W JOHNSON LERC/E D BAUMANN 45-Elec Engr  
 R F ASKEW ....I T MYERS

**NAG 8-923 Auburn University 1033**  
 ANALYSIS OF ADVANCED SRM INITION PHENOMENA  
*Period Obligations*  
 08/20/1992-08/19/1993 FY93: \$0 TOTAL: \$85,172  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 W A FOSTER MSFC/J E HENGEL 49-Engr, NEC  
 R M JENKINS ....C L MARTIN

**NGT 00-050-354 Auburn University 1041**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 07/28/1988-12/31/1992 FY93: \$0 TOTAL: \$80,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 Y TZENG HQ/F C OWENS 45-Elec Engr

**NAG 8-977 Auburn University 1034**  
 NUMERICAL INVESTIGATION OF THERMAL CREEP AND THERMAL  
 STRESS EFFECTS IN MICROGRAVITY PHYSICAL VAPOR  
*Period Obligations*  
 07/16/1993-07/31/1994 FY93: \$45,000 TOTAL: \$45,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D W MACKOWSKI MSFC/B G PENN 46-Mech Engr  
 ....D O FRAZIER

**NGT 00-050-402 Auburn University 1042**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 09/28/1989-03/15/1994 FY93: \$6,084 TOTAL: \$68,084  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M J CROCKER HQ/F C OWENS 46-Mech Engr

**NAG 9-330 Auburn University 1035**  
 CHEMICAL DISTRIBUTION DURING PETROGENESI  
*Period Obligations*  
 06/01/1989-11/01/1992 FY93: \$59 TOTAL: \$102,841  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 P A SALPAS JSC/I D BROWNE 12-Chemistry

**NGT 00-050-435 Auburn University 1043**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 09/13/1989-06/30/1993 FY93: \$0 TOTAL: \$62,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M E BAGINSKI HQ/F C OWENS 45-Elec Engr

**NAGW 1192 Auburn University 1036**  
 CENTER FOR COMMERCIAL DEVELOPMENT OF SPACE  
*Period Obligations*  
 11/16/1987-10/31/1993 FY93: \$2,854,400 TOTAL: \$13,093,973  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R ASKEW HQ/W A ORAN 42-Astro Engr  
 ....R P WHITTEN

**NGT 00-050-531 Auburn University 1044**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 09/21/1989-06/30/1992 FY93: \$0 TOTAL: \$62,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 Y TZENG HQ/F C OWENS 45-Elec Engr

**NASA'S UNIVERSITY PROGRAM**  
**ALABAMA (Continued)**

**NGT 00-050-546 Auburn University 1045**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 07/05/1990-06/30/1992 FY93: \$79 TOTAL: \$43,921  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S RAO HQ/F C OWENS 45-Elec Engr

**NGT 00-050-567 Auburn University 1046**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 08/10/1990-09/30/1992 FY93: \$0 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J C SINHA HQ/F C OWENS 46-Mech Engr

**NGT 00-050-597 Auburn University 1047**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 08/21/1990-07/31/1992 FY93: \$0 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 P K RAJU HQ/F C OWENS 46-Mech Engr

**NGT 00-050-598 Auburn University 1048**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 10/02/1990-11/15/1992 FY93: \$0 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 B Z JANG HQ/F C OWENS 47-Materials Engr

**NGT 00-050-730 Auburn University 1049**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 07/24/1991-06/30/1992 FY93: \$0 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 G J WEENS HQ/F C OWENS 46-Mech Engr

**NGT 00-050-824 Auburn University 1050**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 08/16/1991-08/31/1993 FY93: \$0 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 B Z JANG HQ/F C OWENS 49-Engr, NEC

**NGT 00-050-974 Auburn University 1051**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 08/04/1992-06/30/1994 FY93: \$11,000 TOTAL: \$33,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S RAO LARC/E PRIOR 45-Elec Engr

**NGT 00-051-043 Auburn University 1052**  
 GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 07/23/1993-09/14/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 B Z JANG MSFC/F SIX 47-Materials Engr

**NGT 00-051-046 Auburn University 1053**  
 GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 05/12/1993-06/30/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J D PEREZ MSFC/F SIX 13-Physics

**NGT 00-051-149 Auburn University 1054**  
 GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 07/19/1993-08/31/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 C MCCREARY HQ/D HOLLAND 22-Computer Science

**NGT 00-070-312 Auburn University 1055**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
 MINORITY FOCUS PROGRAM  
*Period Obligations*  
 05/18/1993-06/15/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 G T FLOWERS HQ/D K RUSSEL 46-Mech Engr

**NCC 8-10 Oakwood College 1056**  
 PROPOSED ASSESSMENT OF VIRTUAL REALITY FOR HUMAN IN  
 CONTROL MISSIONS  
*Period Obligations*  
 09/23/1992-12/23/1992 FY93: \$0 TOTAL: \$26,047  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 H R DESSAU MSFC/G H FICHTL 49-Engr, NEC  
 M DAVIS

**NGT 00-090-073 Oakwood College 1057**  
 UNDERGRADUATE STUDENT RESEARCHERS PROGRAM (UMF)  
*Period Obligations*  
 09/12/1992-08/14/1994 FY93: \$12,000 TOTAL: \$24,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 E A COOPER HQ/D RUSSELL 99-Multi-Discip

**NAG 3-726 Tuskegee University 1058**  
 ELECTRODE EROSION IN LOW POWER CONSTRUCTED AIRJET  
 THRUSTERS  
*Period Obligations*  
 04/23/1986-02/07/1993 FY93: \$0 TOTAL: \$144,682  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 P R RAY LERC/T L HARDY 49-Engr, NEC

**NAG 3-1388 Tuskegee University 1059**  
 SPUTTERING EROSION ON THE ION THRUSTER  
*Period Obligations*  
 12/04/1992-11/30/1993 FY93: \$159,618 TOTAL: \$159,618  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 P K RAY LERC/V K RAWLIN 13-Physics

**NAG 8-40 Tuskegee University 1060**  
 STUDY ENTITLED: 'EFFECTS OF INTERACTION OF PROTONS,  
 ELECTRONS AND CORONA DISCHARGES ON THE ELECTRIC  
*Period Obligations*  
 09/19/1985-09/30/1993 FY93: \$46,785 TOTAL: \$395,007  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 C V DORESWMY MSFC/G H FICHTL 45-Elec Engr  
 ....R W WALKER

# NASA'S UNIVERSITY PROGRAM

## ALABAMA (Continued)

**NAG 8-131 Tuskegee University 1061**  
EFFECTS OF ENVIRONMENT/ COMBINED COMPRESSION SHEAR  
ON RESPONSE OF THERMOPLASTIC COMPOSITES  
*Period Obligations*  
08/21/1989-08/31/1993 FY93: \$0 TOTAL: \$167,282  
*Prin. Invest. NASA Tech. Officer CASE Category*  
S JEELANI MSFC/J L RANDALL 47-Materials Engr  
...../R J WALKER

**NAG 8-296 Tuskegee University 1062**  
NUMERICAL PREDICTIONS OF TWO-PHASE THREE  
DIMENSION PRE-BURNER OF SPACE TRANSPORTATION MAIN  
ENGINE  
*Period Obligations*  
05/20/1993-05/31/1994 FY93: \$49,940 TOTAL: \$49,940  
*Prin. Invest. NASA Tech. Officer CASE Category*  
C J WANG MSFC/B WALKER 29-Math/Computer, NEC

**NAGW 2940 Tuskegee University 1063**  
CENTER FOR FOOD PRODUCTION, PROCESSING AND WASTE M  
ANAGEMENT  
*Period Obligations*  
03/12/1992-12/31/1993 FY93: \$932,265 TOTAL: \$1,616,152  
*Prin. Invest. NASA Tech. Officer CASE Category*  
W A HILL HQ/S E MASSENBERG 99-Multi-Discip  
...../S HARTMAN

**NAGW 3472 Tuskegee University 1064**  
MECHANICAL PROPERTY CHARACTERIZATION OF REFRACTOR Y  
COMPOSITES  
*Period Obligations*  
03/30/1993-02/28/1994 FY93: \$272,900 TOTAL: \$272,900  
*Prin. Invest. NASA Tech. Officer CASE Category*  
S JEELANI HQ/S STOVALL-ALEXANDER 99-Multi-Discip

**NAG10-125 Tuskegee University 1065**  
RESEARCH AND DEVELOPMENT OF MATERIALS PROTECTIVE  
CLOTHING  
*Period Obligations*  
07/12/1993-07/25/1994 FY93: \$99,999 TOTAL: \$99,999  
*Prin. Invest. NASA Tech. Officer CASE Category*  
N VAHDAT KSC/K THOMPSON 12-Chemistry

**NAG 8-768 University of Alabama - Birmingham 1066**  
IMMISCIBLE PHASE INCORP DURING DIRECTIONAL SOLIDIFICATION  
OF HYPERMONOTECTICS  
*Period Obligations*  
04/01/1989-09/30/1992 FY93: \$0 TOTAL: \$200,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
B J ANDREWS MSFC/P A CURRERI 13-Physics

**NAG 8-840 University of Alabama - Birmingham 1067**  
AN OPTICAL MONITORING SYSTEM FOR PROTEIN CRYSTAL  
GROWTH HARDWARE  
*Period Obligations*  
07/17/1990-07/16/1992 FY93: \$0 TOTAL: \$400,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
L J DELUCAS MSFC/R S SNYDER 12-Chemistry

**NAG 8-928 University of Alabama - Birmingham 1068**  
MEASUREMENT OF MASS SPECTRUM SPECIES  
*Period Obligations*  
07/29/1992-10/28/1992 FY93: \$0 TOTAL: \$5,875  
*Prin. Invest. NASA Tech. Officer CASE Category*  
T J WDOWIAK MSFC/P A CURRERI 13-Physics

**NAGW 749 University of Alabama - Birmingham 1069**  
COSMIC ICES/MOLECULES: A LABORATORY INVESTIGATION  
*Period Obligations*  
06/01/1985-02/28/1994 FY93: \$25,560 TOTAL: \$276,054  
*Prin. Invest. NASA Tech. Officer CASE Category*  
T J WDOWIAK HQ/F C GILLET 13-Physics  
...../E J WEILER

**NAGW 813 University of Alabama - Birmingham 1070**  
MICRO MOLECULAR CRYSTALLAGRAPY IN SPACE  
*Period Obligations*  
09/15/1985-10/31/1993 FY93: \$2,070,000 TOTAL: \$11,678,180  
*Prin. Invest. NASA Tech. Officer CASE Category*  
C E BUGG HQ/A VILLAMIL 51-Biological Sci  
K M PRUITT

**NAGW 1512 University of Alabama - Birmingham 1071**  
THE CHEMICAL BASIS FOR THE ORIGIN OF THE GENETIC CODE  
AND  
*Period Obligations*  
11/28/1988-11/30/1994 FY93: \$124,899 TOTAL: \$519,299  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J C LACEY HQ/M MEYER 12-Chemistry

**NAGW 3081 University of Alabama - Birmingham 1072**  
COMBINED BACKSCATTER MOSSBAUER SPECTROMETER/X-RAY  
FLUORESCENCE ANALYZER FOR PLANETARY SURFACE MATERIA  
*Period Obligations*  
05/15/1992-04/30/1994 FY93: \$94,400 TOTAL: \$179,400  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D C AGRESTI HQ/H C BRINTON 19-Phys Sci, NEC

**NAS 8-36611 University of Alabama - Birmingham 1073**  
RESEARCH STUDY ENTITLED 'PROTEIN CRYSTAL GROWTH IN A  
MICROGRAVITY ENVIRONMENT'  
*Period Obligations*  
07/25/1985-10/31/1993 FY93: \$1,139,646 TOTAL: \$8,290,934  
*Prin. Invest. NASA Tech. Officer CASE Category*  
C E BUGG MSFC/B HERREN 51-Biological Sci  
L J DELUCAS  
J K BAIRD

**NAS 8-38672 University of Alabama - Birmingham 1074**  
CRYSTAL GROWTH OF SELECTED II - VI SEMICONDUCTING  
ALLOYS  
*Period Obligations*  
09/17/1990-10/28/1993 FY93: \$84,807 TOTAL: \$312,847  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R N ANDREWS MSFC/F R SZOFRAN 19-Phys Sci, NEC  
...../D C GILLIES

**NASA'S UNIVERSITY PROGRAM**  
**ALABAMA (Continued)**

**NAS 8-39717 University of Alabama - Birmingham 1075**  
 RESEARCH STUDY  

Period	Obligations	
01/29/1993-01/28/1996	FY93: \$160,000	TOTAL: \$160,000
Prin. Invest.	NASA Tech. Officer	CASE Category
J B ANDREWS	MSFC/L C YATES	19-Phys Sci, NEC

**NGT 00-050-880 University of Alabama - Birmingham 1083**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  

Period	Obligations	
05/29/1992-07/31/1994	FY93: \$22,000	TOTAL: \$44,000
Prin. Invest.	NASA Tech. Officer	CASE Category
D L SHEALY	MSFC/F SIX	13-Physics

**NAS 8-39762 University of Alabama - Birmingham 1076**  
 PROTEIN CRYSTAL GROWTH IN MICROGRAVITY  

Period	Obligations	
10/23/1992-08/31/1993	FY93: \$725,374	TOTAL: \$725,374
Prin. Invest.	NASA Tech. Officer	CASE Category
L J DELUCAS	MSFC/B J HERREN	19-Phys Sci, NEC

**NGT 00-051-080 University of Alabama - Birmingham 1084**  
 GRADUATE STUDENT RESEARCHERS PROGRAM  

Period	Obligations	
06/02/1993-06/30/1994	FY93: \$22,000	TOTAL: \$22,000
Prin. Invest.	NASA Tech. Officer	CASE Category
R ANDREWS	HQ/D A HOLLAND	47-Materials Engr

**NAS 8-39766 University of Alabama - Birmingham 1077**  
 CRYSTAL GROWTH STUDY  

Period	Obligations	
01/08/1993-06/30/1993	FY93: \$109,796	TOTAL: \$109,796
Prin. Invest.	NASA Tech. Officer	CASE Category
L J DELUCAS	MSFC/M L PUSEY	13-Physics
W M ROSENBLUM	....R S SNYDER	
W W WILSON		

**NAG 1-1228 University of Alabama - Huntsville 1085**  
 ANALYSIS OF SURFACES FROM THE LDEF AO114- PHASE II  

Period	Obligations	
02/28/1991-12/31/1993	FY93: \$140,000	TOTAL: \$402,890
Prin. Invest.	NASA Tech. Officer	CASE Category
J GREGORY	LARC/J L JONES	47-Materials Engr
	....L A TEICHMAN	

**NGT 00-050-554 University of Alabama - Birmingham 1078**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  

Period	Obligations	
07/17/1990-05/31/1993	FY93: \$0	TOTAL: \$66,000
Prin. Invest.	NASA Tech. Officer	CASE Category
D G AGRESTI	HQ/F C OWENS	13-Physics

**NAG 1-1534 University of Alabama - Huntsville 1086**  
 A DETERMINATION OF OPTIMAL CONDITIONS FOR MELT STABILIZATION IN A MAGNETIC FIELD  

Period	Obligations	
07/20/1993-01/19/1994	FY93: \$20,598	TOTAL: \$20,598
Prin. Invest.	NASA Tech. Officer	CASE Category
A NADARAJAH	LARC/A L FRIPP	19-Phys Sci, NEC

**NGT 00-050-566 University of Alabama - Birmingham 1079**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  

Period	Obligations	
08/10/1990-06/08/1993	FY93: \$0	TOTAL: \$66,000
Prin. Invest.	NASA Tech. Officer	CASE Category
B ANDREWS	HQ/F C OWENS	47-Materials Engr

**NAG 3-1373 University of Alabama - Huntsville 1087**  
 CONTRIBUTION OF CONTAMINANT IONS TO THE ELECTROMAGNETIC ENVIRONMENT OF SPACE STATION FREEDOM  

Period	Obligations	
10/07/1992-09/30/1993	FY93: \$39,471	TOTAL: \$73,071
Prin. Invest.	NASA Tech. Officer	CASE Category
N SINGH	LERC/D B SNYDER	13-Physics
B I VASHI		

**NGT 00-050-614 University of Alabama - Birmingham 1080**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  

Period	Obligations	
07/06/1990-06/30/1993	FY93: \$0	TOTAL: \$66,000
Prin. Invest.	NASA Tech. Officer	CASE Category
J B ANDREWS	HQ/J T LYNCH	47-Materials Engr

**NAG 3-1384 University of Alabama - Huntsville 1088**  
 STABILITY LIMITS AND DYNAMICS OF NONAXISYMMETRIC LIQ UID BRIDGES  

Period	Obligations	
11/23/1992-11/18/1995	FY93: \$162,887	TOTAL: \$162,887
Prin. Invest.	NASA Tech. Officer	CASE Category
J I ALEXANDER	LERC/J A SALZMAN	19-Phys Sci, NEC

**NGT 00-050-877 University of Alabama - Birmingham 1081**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  

Period	Obligations	
07/23/1992-05/31/1994	FY93: \$22,000	TOTAL: \$44,000
Prin. Invest.	NASA Tech. Officer	CASE Category
B ANDREWS	MSFC/F SIX	47-Materials Engr

**NAG 5-1651 University of Alabama - Huntsville 1089**  
 A SEARCH FOR CORONAL X-RAY EMISSIONS FROM WHITE DWARFS  

Period	Obligations	
06/24/1991-06/30/1992	FY93: \$0	TOTAL: \$10,000
Prin. Invest.	NASA Tech. Officer	CASE Category
Z E MUSIELAK	GSFC/R PETRE	11-Astronomy

**NGT 00-050-879 University of Alabama - Birmingham 1082**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  

Period	Obligations	
09/23/1992-06/30/1994	FY93: \$22,000	TOTAL: \$44,000
Prin. Invest.	NASA Tech. Officer	CASE Category
D G AGRESTI	MSFC/F SIX	13-Physics



**NASA'S UNIVERSITY PROGRAM**  
**ALABAMA (Continued)**

**NAG 5-1756 University of Alabama - Huntsville 1090**  
 AN INVESTIGATION OF TEMPORAL CORRELATIONS AMONGST  
 GAMMA-RAY BURST SPECTRAL COMPONENTS  
*Period Obligations*  
 08/26/1991-10/31/1993 FY93: \$48,756 TOTAL: \$103,756  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 W PACIESAS GSFC/J P NORRIS 11-Astronomy  
 M S BRIGGS ....C A GEHRELS

**NAG 5-1863 University of Alabama - Huntsville 1091**  
 A SEARCH FOR CORONAL X-RAY EMISSIONS FROM WHITE DW  
 ARFS  
*Period Obligations*  
 01/22/1992-02/14/1993 FY93: \$0 TOTAL: \$15,505  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 Z E MUSIELAK GSFC/R PETRE 11-Astronomy

**NAG 5-2019 University of Alabama - Huntsville 1092**  
 AN INVESTIGATION INTO THE FUNDAMENTAL TIME STRUCTU RE  
 OF HIGH ENERGY PROCESSES IN SOLAR FLARES  
*Period Obligations*  
 07/08/1992-01/14/1994 FY93: \$46,778 TOTAL: \$77,978  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 G EMSLIEO GSFC/J P NORRIS 11-Astronomy  
 ....N WHITE

**NAG 5-2056 University of Alabama - Huntsville 1093**  
 GAMMA-RAY BURST DIAGNOSTICS OF PROCESSES IN A STRO NG  
 MAGNETIC FIELD  
*Period Obligations*  
 07/28/1992-07/31/1993 FY93: \$24,000 TOTAL: \$40,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J J BRAINERD GSFC/J P NORRIS 11-Astronomy  
 ....N WHITE

**NAG 8-108 University of Alabama - Huntsville 1094**  
 SEMICONDUCTOR  
*Period Obligations*  
 05/25/1988-12/31/1993 FY93: \$0 TOTAL: \$84,990  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 F D HO MSFC/T EDGE 45-Elec Engr  
 ....O A NORTON

**NAG 8-129 University of Alabama - Huntsville 1095**  
 NUMERICAL STUDIES OF THE SURFACE TENSION EFFECT ON THE  
 ROTATING HELIUM DEWAR IN GP-B SPACECRAFT.  
*Period Obligations*  
 03/29/1989-10/16/1992 FY93: \$0 TOTAL: \$354,928  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R J HUNG MSFC/F W LESLIE 47-Materials Engr  
 ....J W KAUFMAN

**NAG 8-134 University of Alabama - Huntsville 1096**  
 SPACE PLASMA PHYSICS RESEARCH  
*Period Obligations*  
 07/13/1989-12/31/1992 FY93: \$0 TOTAL: \$615,726  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R H COMFORT MSFC/W L CHISHOLM 13-Physics  
 J L HORWITZ ....M O CHANDLER

**NAG 8-172 University of Alabama - Huntsville 1097**  
 TEACHERS SCIENCE EDUCATION INSTITUTE  
*Period Obligations*  
 11/15/1990-10/12/1991 FY93: \$0 TOTAL: \$50,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J C WRIGHT MSFC/F SIX 99-Multi-Discip  
 ....C R CHAPPELL

**NAG 8-178 University of Alabama - Huntsville 1098**  
 PHASE III EVALUATION OF EXPLORATOIN WORKSHOP CONCEPTS  
 THE VON BRAUN FORUMS  
*Period Obligations*  
 01/23/1991-02/13/1994 FY93: \$39,994 TOTAL: \$117,552  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A H YELLE MSFC/C R CHAPPELL 99-Multi-Discip

**NAG 8-210 University of Alabama - Huntsville 1099**  
 MARSHALL ELEMENTARY TEACHERS FELLOW PROGRAM  
*Period Obligations*  
 08/15/1991-08/14/1992 FY93: \$0 TOTAL: \$12,500  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J C WRIGHT MSFC/F SIX 99-Multi-Discip

**NAG 8-212 University of Alabama - Huntsville 1100**  
 SUMMER RESEARCH PROGRAM  
*Period Obligations*  
 01/14/1992-07/09/1993 FY93: \$29,695 TOTAL: \$425,030  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 G R KARR MSFC/F SIX 41-Aero Engr

**NAG 8-234 University of Alabama - Huntsville 1101**  
 PHASE I BIOSPHERE LABORATORY FOR STUDENT RESEARCH  
*Period Obligations*  
 03/12/1992-09/30/1993 FY93: \$0 TOTAL: \$24,981  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J VAN ALSTINE MSFC/F SIX 51-Biological Sci

**NAG 8-239 University of Alabama - Huntsville 1102**  
 MAGNETOSPHERIC SPACE PLASMA INVESTIGATIONS  
*Period Obligations*  
 07/10/1992-07/09/1994 FY93: \$65,000 TOTAL: \$272,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R H COMFORT MSFC/T E MOORE 13-Physics  
 J L HORWITZ ....G T MCCRANIE

**NAG 8-293 University of Alabama - Huntsville 1103**  
 SUMMER FACULTY FELLOWSHIP RESEARCH CONTINUATION  
 PROGRAM  
*Period Obligations*  
 03/26/1993-03/25/1994 FY93: \$107,325 TOTAL: \$107,325  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 G KARR MSFC/F SIX 42-Astro Engr

**NAG 8-297 University of Alabama - Huntsville 1104**  
 A SYSTEMIC CHANGE OF SCIENCE EDUCATION  
*Period Obligations*  
 07/07/1993-06/30/1994 FY93: \$39,923 TOTAL: \$39,923  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J WRIGHT MSFC/B ANDERSON 51-Biological Sci

**NASA'S UNIVERSITY PROGRAM**  
**ALABAMA (Continued)**

**NAG 8-759 University of Alabama - Huntsville 1105**  
 RESIDUAL ACCELERATION DATA ON IML-I DETERMINATION OF  
 EXPERIMENT SENSITIVITY, AND EFFICIENT DATA DISS  
*Period Obligations*  
 03/01/1989-05/31/1992 FY93: \$0 TOTAL: \$528,676  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J I ALEXANDER MSFC/R S SNYDER 11-Astronomy

**NAG 8-767 University of Alabama - Huntsville 1106**  
 THE GROWTH OF ZINC SELE-NIDE SINGLE CRYSTALS BY PHYSICAL  
 VAPOR TRANSPORT IN MICROGRAVITY  
*Period Obligations*  
 04/01/1989-08/31/1994 FY93: \$60,000 TOTAL: \$539,719  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 E E ANDERSON MSFC/S L LEHOCZKY 13-Physics  
 H Y CHENG  
 F E ROSENBERGER

**NAG 8-790 University of Alabama - Huntsville 1107**  
 PROCESS MODELLING FOR MATERIALS PREPARATION  
 EXPERIMENTS  
*Period Obligations*  
 09/07/1989-05/31/1993 FY93: \$174,845 TOTAL: \$1,022,937  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 F E ROSENBERGER MSFC/S L LEHOCZKY 29-Math/Computer, NEC  
 J I ALEXANDER  
 J OUAZZANI

**NAG 8-816 University of Alabama - Huntsville 1108**  
 KINETICS OF DIFFUSIONAL DROPLET GROWTH  
*Period Obligations*  
 03/06/1990-03/14/1992 FY93: \$0 TOTAL: \$105,599  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J K BAIRD MSFC/D O FRAZIER 11-Astronomy

**NAG 8-822 University of Alabama - Huntsville 1109**  
 THE ROLE OF IONOSPHERIC PLASMAS IN MAGNETOSPHERE  
*Period Obligations*  
 08/06/1990-08/05/1993 FY93: \$0 TOTAL: \$154,435  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 G R WILSON MSFC/T E MOORE 13-Physics  
 J L HORWITZ .... /M O CHANDLER

**NAG 8-834 University of Alabama - Huntsville 1110**  
 THEORETICAL AND EXPERIMENTAL STUDIES RELEVANT TO  
 INTERPRETATION OF AURORAL EMISSIONS  
*Period Obligations*  
 06/20/1990-06/25/1994 FY93: \$0 TOTAL: \$386,766  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 C E KEFFER MSFC/S A FIELDS 31-Atmos Sci  
 G A GERMANY .... /L S REED

**NAG 8-839 University of Alabama - Huntsville 1111**  
 PHYSICS OF WAVES IN THE SOLAR ATMOSPHERE  
*Period Obligations*  
 09/11/1990-09/01/1993 FY93: \$58,267 TOTAL: \$167,751  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 Z MUSIELAK MSFC/J M DAVIS 13-Physics  
 .... /E R REICHMANN

**NAG 8-842 University of Alabama - Huntsville 1112**  
 RESEARCH SUPPORT FOR THE CDTE CRYSTAL GROWTH  
*Period Obligations*  
 07/27/1990-08/09/1993 FY93: \$53,069 TOTAL: \$155,070  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 F E ROSENBERGER MSFC/F R SZOFRAN 19-Phys Sci, NEC  
 .... /G L PERRY

**NAG 8-850 University of Alabama - Huntsville 1113**  
 COMPOSITE PROPELLANT TECHNOLOGY RESEARCH  
*Period Obligations*  
 10/11/1990-07/15/1992 FY93: \$0 TOTAL: \$90,556  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M V BOWER MSFC/T KOVACEVICH 21-Mathematics  
 .... /V RICHARD

**NAG 8-868 University of Alabama - Huntsville 1114**  
 ADVANCED PROTEIN CRYSTAL GROWTH PROCESS DEVELOPMEN  
*Period Obligations*  
 03/23/1991-03/10/1992 FY93: \$0 TOTAL: \$99,688  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 F ROSENBERGER MSFC/M L PUSEY 51-Biological Sci

**NAG 8-872 University of Alabama - Huntsville 1115**  
 SOLAR FLARE ENERGETICS  
*Period Obligations*  
 04/08/1991-04/14/1992 FY93: \$0 TOTAL: \$107,455  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M E MACHADO MSFC/J M DAVIS 11-Astronomy  
 .... /E J REICHMANN

**NAG 8-874 University of Alabama - Huntsville 1116**  
 THE MAGNETIC CONFIGURATION LEADING TO SOLAR FLARES  
 MEASUREMENTS AND THEORY  
*Period Obligations*  
 06/05/1991-08/08/1994 FY93: \$57,658 TOTAL: \$161,340  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J M FONTENLA MSFC/J M DAVIS 11-Astronomy  
 .... /E J REICHMANN

**NAG 8-888 University of Alabama - Huntsville 1117**  
 DEVELOPMENT, REFINEMENT AND TESTING OF A SHORT TERM  
 SOLAR FLARE PREDICTION ALGORITHM  
*Period Obligations*  
 08/05/1991-07/31/1993 FY93: \$0 TOTAL: \$71,860  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J B SMITH MSFC/E J REICHMANN 31-Atmos Sci  
 .... /J M DAVIS

**NAG 8-904 University of Alabama - Huntsville 1118**  
 A DATA AND INFORMATION SYSTEM FOR PROCESSING, ARCHIVAL  
 AND DISTRIBUTUION OF DATA FOR RESEARCH  
*Period Obligations*  
 03/25/1992-03/24/1993 FY93: \$0 TOTAL: \$286,544  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S J GRAVES MSFC/H M GOODMAN 22-Computer Science

**NAG 8-931 University of Alabama - Huntsville 1119**  
 BREADBOARD ACTIVITIES FOR ADVANCED PROTEIN CRYSTAL  
 GROWTH  
*Period Obligations*  
 08/03/1992-08/02/1993 FY93: \$0 TOTAL: \$63,337  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 F ROSENBERGER MSFC/M L PUSEY 19-Phys Sci, NEC

**NASA'S UNIVERSITY PROGRAM**  
**ALABAMA (Continued)**

**NAG 8-938 University of Alabama - Huntsville 1120**  
 STUDIES OF SURFACE TENSION ON ROTATING HELIUM  
*Period Obligations*  
 09/14/1992-09/30/1993 FY93: \$0 TOTAL: \$128,136  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R J HUNG MSFC/J W KAUFMAN 13-Physics

**NAG 8-950 University of Alabama - Huntsville 1121**  
 CRYSTAL GROWTH STUDY  
*Period Obligations*  
 02/12/1993-01/31/1994 FY93: \$174,521 TOTAL: \$174,521  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 F ROSENBERGER MSFC/D CARTER 41-Aero Engr

**NAG 8-955 University of Alabama - Huntsville 1122**  
 CHARACTERIZATION OF SURFACES  
*Period Obligations*  
 03/11/1993-03/10/1994 FY93: \$30,012 TOTAL: \$30,012  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J M VAN ALSTINE MSFC/R S SNYDER 12-Chemistry

**NAGW 9 University of Alabama - Huntsville 1123**  
 DYNAMICAL BEHAVIOR OF A FLARING LOOP  
*Period Obligations*  
 10/01/1979-12/31/1992 FY93: \$24,999 TOTAL: \$903,519  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S T WU HQ/H S AHLUWALIA 13-Physics  
 ....S KANE

**NAGW 294 University of Alabama - Huntsville 1124**  
 IMPULSIVE X RAY EMISSION IN SOLAR FLARES  
*Period Obligations*  
 04/01/1982-06/30/1994 FY93: \$24,999 TOTAL: \$470,310  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A G EMSLIE HQ/H S AHLUWALIA 13-Physics  
 ....J D BOHLIN

**NAGW 812 University of Alabama - Huntsville 1125**  
 MATERIAL PROCESSING  
*Period Obligations*  
 09/15/1985-10/31/1993 FY93: \$2,982,548 TOTAL: \$28,281,480  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 G R KARR HQ/R P WHITTEN 47-Materials Engr  
 C A LUNDQUIST ....A VILLAMIL

**NAGW 996 University of Alabama - Huntsville 1126**  
 A SIMPLE 3-D DYNAMICAL MODEL OF THERMAL PLASMA  
*Period Obligations*  
 01/01/1987-06/30/1994 FY93: \$65,147 TOTAL: \$352,649  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 P G RICHARDS HQ/M M MELLOTT 13-Physics  
 D G TORR ....T W PERRY

**NAGW 1554 University of Alabama - Huntsville 1127**  
 TIME-DEPENDENT POLAR PLASMA OUTFLOW  
*Period Obligations*  
 12/07/1988-02/28/1994 FY93: \$72,801 TOTAL: \$342,618  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J L HORWITZ HQ/M M MELLOTT 13-Physics  
 ....T W PERRY

**NAGW 1630 University of Alabama - Huntsville 1128**  
 EFFECTS OF PLASMASPHERE HEATING ON THERMAL ION COMPOSITION  
*Period Obligations*  
 02/22/1989-07/31/1994 FY93: \$72,235 TOTAL: \$294,742  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R H COMFORT HQ/M M MELLOTT 13-Physics  
 ....T W PERRY

**NAGW 1651 University of Alabama - Huntsville 1129**  
 DEVELOPMENT OF NEW METHODS FOR TRANSITION RADIATION  
*Period Obligations*  
 02/03/1989-02/28/1994 FY93: \$60,000 TOTAL: \$328,185  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 Y TAKAHASHI HQ/M M MELLOTT 13-Physics  
 ....T W PERRY

**NAGW 2023 University of Alabama - Huntsville 1130**  
 A MEASUREMENT OF THE ENERGY SPECTRA OF COSMIC RAYS FROM 20 TO 1000 GEV PER AMV  
*Period Obligations*  
 08/08/1990-02/28/1994 FY93: \$119,998 TOTAL: \$575,598  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J C GREGORY HQ/W V JONES 13-Physics  
 ....J C LING

**NAGW 2096 University of Alabama - Huntsville 1131**  
 ATOMIC DIFFUSION IN THE SOLAR TRANSITION REGION  
*Period Obligations*  
 06/22/1990-03/31/1993 FY93: \$0 TOTAL: \$107,970  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J M FONTENLA HQ/J D BOHLIN 13-Physics  
 ....S KANE

**NAGW 2128 University of Alabama - Huntsville 1132**  
 A NEW APPROACH TO PLASMASPHERE REFILLING ANOMALOUS PLASMA EFFECTS  
*Period Obligations*  
 05/29/1990-07/31/1994 FY93: \$44,996 TOTAL: \$172,292  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 N SINGH HQ/M M MELLOTT 13-Physics  
 ....T PERRY

**NAGW 2739 University of Alabama - Huntsville 1133**  
 CELLULAR RESPONSES TO LOW GRAVITY: PILOT STUDIES ON SUBORBITAL ROCKETS AND ORBITING SPACECRAFT  
*Period Obligations*  
 09/19/1991-09/30/1992 FY93: \$0 TOTAL: \$10,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M LEWIS HQ/T W HALSTEAD 51-Biological Sci

**NAGW 2898 University of Alabama - Huntsville 1134**  
 FAR ULTRAVIOLET NARROWLAND AND BROADBAND FILTERS, POLARIZERS AND BEAMSPLITTERS FOR ASTROPHYSICS  
*Period Obligations*  
 02/20/1992-12/31/1993 FY93: \$79,999 TOTAL: \$159,999  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M ZUKIC HQ/R STACHNIK 11-Astronomy  
 ....E J WEILER

**NASA'S UNIVERSITY PROGRAM**  
**ALABAMA (Continued)**

**NAGW 2903 University of Alabama - Huntsville 1135**  
 NAGW-2903/UNIV ALABAMA/IONOSPHERIC PLASMA OUTFLOW IN  
 RESPONSE TO TRANSVERSE ION HEATING  
*Period Obligations*  
 08/02/1991-06/30/1994 FY93: \$31,499 TOTAL: \$87,484  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 N SINGH HQ/J D BOHLIN 13-Physics

**NAGW 3692 University of Alabama - Huntsville 1142**  
 ANALYSIS OF THE IMAGING SPECTROMETRIC OBSERVATORY (ISO)  
 DATA FROM THE ATLAS-1 MISSION  
*Period Obligations*  
 08/06/1993-07/31/1994 FY93: \$48,931 TOTAL: \$48,931  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D G TORR HQ/M M MELLOTT 13-Physics  
 ....J D BOHLIN

**NAGW 2933 University of Alabama - Huntsville 1136**  
 ON THE PHYSICAL PROCESSES UNDERLYING THE EXISTENCE AND  
 ORIGIN OF X-RAY AND MASS LOSS  
*Period Obligations*  
 02/27/1992-12/31/1993 FY93: \$26,248 TOTAL: \$51,247  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 Z E MUSIELAK HQ/L J KALUZIENSKI 11-Astronomy  
 ....A N BUNNER

**NAS 1-19417 University of Alabama - Huntsville 1143**  
 ACCELERATION MEASUREMENT AND MANAGEMENT PROGRAM  
*Period Obligations*  
 09/03/1991-06/30/1993 FY93: \$0 TOTAL: \$44,402  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J A BIJVOET LARC/R L WRIGHT 41-Aero Engr  
 C A LUNDQUIST ....J W JOHNSON

**NAGW 2971 University of Alabama - Huntsville 1137**  
 THE OBSERVED CHARACTER OF FLARE ENERGY RELEASE  
*Period Obligations*  
 03/11/1992-12/31/1992 FY93: \$0 TOTAL: \$51,694  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M MACHADO HQ/W J WAGNER 13-Physics  
 ....J D BOHLIN

**NAS 8-36718 University of Alabama - Huntsville 1144**  
 STUDY ENTITLED 'BASIC STUDIES IN THEORETICAL AND  
 EXPERIMENTAL FLUID DYNAMICS STUDIES FOR SPACE FLIGHT  
*Period Obligations*  
 09/04/1986-07/31/1993 FY93: \$0 TOTAL: \$1,286,699  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R T MC NIDER MSFC/J W KAUFMAN 29-Math/Cmputer,NEC  
 B J SCHROER ....G H FICHTL

**NAGW 3470 University of Alabama - Huntsville 1138**  
 THE IONOSPHERE MAGNETOSPHERE TRANSITION REGION SIM  
 ULATION AND DATA COMPARISON  
*Period Obligations*  
 04/09/1993-02/28/1994 FY93: \$66,045 TOTAL: \$66,045  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 G R WILSON HQ/E C WHIPPLE 13-Physics  
 ....G L WITHBROE

**NAS 8-36955 University of Alabama - Huntsville 1145**  
 ESSENTIAL EDUCATIONAL ENGINEERING RESEARCH AND  
 DEVELOPMENT CAPABILITY.  
*Period Obligations*  
 06/06/1988-08/07/1993 FY93: \$26,174 TOTAL: \$11,093,767  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 W W VAUGHN MSFC/L J SMITH 99-Multi-Discip  
 ....M B ROBINSON

**NAGW 3540 University of Alabama - Huntsville 1139**  
 NAGW-3540/UNIV ALABAMA/ AUTOMATED ANALYSIS OF ULTR A  
 HIGH ENERGY COSMIC RAY EVENTS  
*Period Obligations*  
 04/21/1993-02/28/1994 FY93: \$85,000 TOTAL: \$85,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 Y TAKAHASHI HQ/W V JONES 13-Physics  
 ....G L WITHBROE

**NAS 8-37106 University of Alabama - Huntsville 1146**  
 REFUGHT OF IMAGING SPECTROMETRIC OBSERVATORY ON THE  
 ATLAS I MISSION.  
*Period Obligations*  
 02/13/1987-06/30/1994 FY93: \$238,940 TOTAL: \$1,864,340  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D G TORR MSFC/J E JOHNSON 11-Astronomy  
 ....R ISE

**NAGW 3617 University of Alabama - Huntsville 1140**  
 TRACE ELEMENT ABUNDANCES IN HOT DA WHITE DWARFS  
*Period Obligations*  
 05/26/1993-03/31/1994 FY93: \$53,939 TOTAL: \$53,939  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A G EMSLIE HQ/W J WAGNER 13-Physics  
 ....J D BOHLIN

**NAS 8-37107 University of Alabama - Huntsville 1147**  
 STUDY ENTITLED 'RESEARCH ON ORBITAL  
 PLASMA-ELECTRODYNAMICS.'  
*Period Obligations*  
 03/17/1987-09/30/1993 FY93: \$99,000 TOTAL: \$626,772  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 N STON MSFC/J LAUE 31-Atmos Sci  
 S T WU ....R HOLDER  
 N SINGH

**NAGW 3674 University of Alabama - Huntsville 1141**  
 INVESTIGATE THE IMPROVEMENT OF INTERUSABILITY FOR NASA  
 EOS DATA  
*Period Obligations*  
 07/13/1993-04/30/1994 FY93: \$305,049 TOTAL: \$305,049  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M E BOTTS HQ/M E MAIDEN 39-Env Sci, NEC

**NAS 8-37139 University of Alabama - Huntsville 1148**  
 METEOROLOGICAL OBSERVATIONS.'  
*Period Obligations*  
 12/24/1987-11/15/1992 FY93: \$0 TOTAL: \$1,332,431  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R T MC NIDER MSFC/G S WILSON 31-Atmos Sci

**NASA'S UNIVERSITY PROGRAM**  
**ALABAMA (Continued)**

**NAS 8-37585 University of Alabama - Huntsville 1149**  
SPACE SENSOR DEVELOPMENT AND INTERPETATION.  

Period	Obligations
01/31/1989-02/01/1992	FY93: \$0 TOTAL: \$1,533,631
Prin. Invest.	NASA Tech. Officer CASE Category
R T MCNIDER	MSFC/J ARNOLD 31-Atmos Sci

**NAS 8-39716 University of Alabama - Huntsville 1157**  
RESEARCH STUDY  

Period	Obligations
02/02/1993-07/31/1994	FY93: \$186,000 TOTAL: \$186,000
Prin. Invest.	NASA Tech. Officer CASE Category
F ROSENBERGER	MSFC/L B JETER 19-Phys Sci, NEC

**NAS 8-38145 University of Alabama - Huntsville 1150**  
PROVIDE OPTICAL FILTERAND MECHANICAL DESIGN  

Period	Obligations
01/12/1990-09/30/1996	FY93: \$535,670 TOTAL: \$3,128,399
Prin. Invest.	NASA Tech. Officer CASE Category
M R TORR	MSFC/G H FICHTAL 13-Physics
D G TORR	

**NAS 9-18403 University of Alabama - Huntsville 1158**  
MEDICAL SUPPORT FOR MANNED ENVIRONMENTAL CONTROL LIFE SUPPORT SYSTEM TESTING  

Period	Obligations
11/29/1990-01/04/1993	FY93: \$18,660 TOTAL: \$308,010
Prin. Invest.	NASA Tech. Officer CASE Category
W CRUMP	JSC/R L SAUER 56-Medical Sciences

**NAS 8-38428 University of Alabama - Huntsville 1151**  
EMULSION CHANBER TECHNOLOGY EXPERIMENT  

Period	Obligations
05/16/1990-05/07/1995	FY93: \$208,000 TOTAL: \$1,804,973
Prin. Invest.	NASA Tech. Officer CASE Category
J C GREGORY	MSFC/J JOHNSON 42-Astro Engr
	....O GEORGE

**NCC 8-18 University of Alabama - Huntsville 1159**  
COOPERATIVE APPROACH TO MSFC TECHNICAL TRANSFER PR  

Period	Obligations
06/11/1992-11/29/1993	FY93: \$254,694 TOTAL: \$443,694
Prin. Invest.	NASA Tech. Officer CASE Category
B J SCHROER	MSFC/J R RICHARDSON 99-Multi-Discip
W SOUDER	....K FERNANDEZ

**NAS 8-38609 University of Alabama - Huntsville 1152**  
ESSENTIAL ENGINEERING SERVICES, RESEARCH AND DEVEL CAPABILITY  

Period	Obligations
04/24/1991-11/22/1993	FY93: \$1,772,450 TOTAL: \$4,694,351
Prin. Invest.	NASA Tech. Officer CASE Category
W W VAUGHAN	MSFC/L J SMITH 99-Multi-Discip
	....D W HIPP

**NCC 8-19 University of Alabama - Huntsville 1160**  
GROUND BASED RESEARCH IN MICROGRAVITY MATERIALS PR  

Period	Obligations
11/04/1992-11/03/1993	FY93: \$75,000 TOTAL: \$75,000
Prin. Invest.	NASA Tech. Officer CASE Category
G WORKMAN	MSFC/M B ROBINSON 47-Materials Engr
	....S L LEHOCZKY

**NAS 8-38663 University of Alabama - Huntsville 1153**  
AN INFORMATION SYSTEM FOR EARTH SYSTEM SCIENCE  

Period	Obligations
11/08/1991-11/07/1994	FY93: \$488,585 TOTAL: \$851,841
Prin. Invest.	NASA Tech. Officer CASE Category
S J GRAVES	MSFC/R J KOCZOR 22-Computer Science
R T MCNIDER	

**NCC 8-21 University of Alabama - Huntsville 1161**  
DATA AND INFORMATION SYSTEM  

Period	Obligations
05/21/1993-05/24/1995	FY93: \$324,000 TOTAL: \$324,000
Prin. Invest.	NASA Tech. Officer CASE Category
S J GRAVES	MSFC/H M GOODMAN 22-Computer Science
H M GOODMAN	

**NAS 8-38773 University of Alabama - Huntsville 1154**  
USML-1 GLOVERBOX EXPERIMENTS  

Period	Obligations
11/01/1990-12/31/1994	FY93: \$0 TOTAL: \$166,506
Prin. Invest.	NASA Tech. Officer CASE Category
R J NAUMANN	MSFC/R P CHASSAY 39-Env Sci, NEC

**NCC 8-22 University of Alabama - Huntsville 1162**  
GLOBAL CHANGE RESEARCH  

Period	Obligations
09/01/1993-08/31/1994	FY93: \$1,919,577 TOTAL: \$1,919,577
Prin. Invest.	NASA Tech. Officer CASE Category
D J PERKEY	MSFC/R J KOCZOR 31-Atmos Sci
R T MCNIDER	
M W KALB	

**NAS 8-38776 University of Alabama - Huntsville 1155**  
FIELD AND DATA ANALYSIS STUDIES RELATED TO THE ATMOSPHERIC ENVIRONMENT  

Period	Obligations
02/21/1991-03/01/1994	FY93: \$50,000 TOTAL: \$953,522
Prin. Invest.	NASA Tech. Officer CASE Category
S Q KIDDER	MSFC/J E ARNOLD 31-Atmos Sci
R T MCNIDER	

**NCC 8-28 University of Alabama - Huntsville 1163**  
STUDY VULNERABILITY OF SPACE STATION FREEDOM MODULES  

Period	Obligations
09/07/1993-03/14/1995	FY93: \$255,000 TOTAL: \$255,000
Prin. Invest.	NASA Tech. Officer CASE Category
G R HOUGH	MSFC/R E DOTSON 49-Engr, NEC
	....K B HAYASHIDA

**NAS 8-38789 University of Alabama - Huntsville 1156**  
MONITORING, ANALYZING AND MODELING THE GLOBAL EARTH SYSTEM  

Period	Obligations
10/06/1991-08/31/1994	FY93: \$778,765 TOTAL: \$978,186
Prin. Invest.	NASA Tech. Officer CASE Category
S R CHRISTY	MSFC/F LESLIE 31-Atmos Sci
K T MCNIDER	

**NGT 00-040-010 University of Alabama - Huntsville 1164**  
NATIONAL SPACE GRANT COLLEGE AND FELLOWSHIP PROGRAM  

Period	Obligations
09/28/1989-01/31/1994	FY93: \$383,000 TOTAL: \$1,489,790
Prin. Invest.	NASA Tech. Officer CASE Category
C A LUNDQUIST	HQ/E T SCHWARTZ 99-Multi-Discip
H WILSON	

**NASA'S UNIVERSITY PROGRAM**  
**ALABAMA (Continued)**

**NGT 00-050-432 University of Alabama - Huntsville 1165**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 08/01/1989-06/30/1992 FY93: \$0 TOTAL: \$40,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M ABUSHAGUR MSFC/F SIX 49-Engr, NEC

**NGT 00-051-121 University of Alabama - Huntsville 1173**  
 GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 08/09/1993-07/31/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 G A DUDLEY KSC/S GOLDSTEIN 56-Medical Sciences

**NGT 00-050-643 University of Alabama - Huntsville 1166**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 10/02/1990-09/30/1993 FY93: \$0 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 W P SCHONBERG HQ/F C OWENS 46-Mech Engr

**NGT 00-070-159 University of Alabama - Huntsville 1174**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
 MINORITY FOCUS PROGRAM  
*Period Obligations*  
 09/26/1989-08/31/1993 FY93: \$22,000 TOTAL: \$84,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 G R KARR HQ/F C OWENS 46-Mech Engr

**NGT 00-050-679 University of Alabama - Huntsville 1167**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 09/10/1990-08/31/1993 FY93: \$0 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S GRAVES HQ/F C OWENS 22-Computer Science

**NGT 00-070-240 University of Alabama - Huntsville 1175**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
 MINORITY FOCUS PROGRAM  
*Period Obligations*  
 08/16/1991-12/31/1993 FY93: \$22,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 G KARR MSFC/F S SIX 46-Mech Engr

**NGT 00-050-701 University of Alabama - Huntsville 1168**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 08/16/1991-08/31/1994 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 Z MUSIELAK HQ/F C OWENS 46-Mech Engr

**NGT 00-070-253 University of Alabama - Huntsville 1176**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
 MINORITY FOCUS PROGRAM  
*Period Obligations*  
 06/21/1992-09/01/1992 FY93: \$22,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 W P SCHONBERG MSFC/F SIX 19-Phys Sci, NEC

**NGT 00-050-753 University of Alabama - Huntsville 1169**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 07/02/1991-05/31/1994 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J M HARRIS HQ/F C OWENS 12-Chemistry  
 J M VAN ALSTINE

**NGT 00-070-366 University of Alabama - Huntsville 1177**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
 MINORITY FOCUS PROGRAM  
*Period Obligations*  
 09/10/1993-06/30/1995 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R MCNIDER HQ/D K RUSSELL 21-Mathematics

**NGT 00-050-866 University of Alabama - Huntsville 1170**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 01/29/1992-12/31/1994 FY93: \$44,000 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A G EMSLIE MSFC/F SIX 13-Physics

**NGT 00-090-120 University of Alabama - Huntsville 1178**  
 UNDERGRADUATE STUDENT RESEARCHERS PROGRAM (UMF)  
*Period Obligations*  
 09/25/1992-08/14/1993 FY93: \$0 TOTAL: \$12,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J GIBSON HQ/D K RUSSELL 99-Multi-Discip

**NGT 00-050-881 University of Alabama - Huntsville 1171**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 05/05/1992-05/31/1994 FY93: \$22,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J A GILBERT MSFC/F SIX 46-Mech Engr

**NGT 1-2099 University of Alabama - Huntsville 1179**  
 SUMMER FACULTY FELLOWSHIP PROGRAM  
*Period Obligations*  
 01/01/1978-03/31/1994 FY93: \$255,300 TOTAL: \$3,541,769  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 L M FREEMAN HQ/F C OWENS 49-Engr, NEC

**NGT 00-051-031 University of Alabama - Huntsville 1172**  
 GRADUATE STUDENT RESEARCH PROGRAM  
*Period Obligations*  
 05/05/1993-05/31/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R T MCNIDER GSFC/M BURRELL 13-Physics

**NGT 1-8021 University of Alabama - Huntsville 1180**  
 A SUMMER FACILTY FELLOWSHIP PROGRAM  
*Period Obligations*  
 01/01/1976-12/31/1993 FY93: \$1,040,999 TOTAL: \$3,927,802  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 G R KARR HQ/A S MCGEE 49-Engr, NEC  
 ....E T SCHWARTZ



**NASA'S UNIVERSITY PROGRAM**  
**ALABAMA (Continued)**

**NAG 1-1069 University of Alabama - University 1181**  
 INORGANIC POLYMERS  
*Period Obligations*  
 11/03/1989-03/31/1993 FY93: \$0 TOTAL: \$167,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J S THRASHER LARC/T L ST CLAIR 47-Materials Engr

**NAG 5-1643 University of Alabama - University 1182**  
 THE IRAS DATABASE AND THE IR PROPERTIES OF RINGED GALAXIES  
*Period Obligations*  
 06/17/1991-06/30/1993 FY93: \$0 TOTAL: \$31,683  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R J BUTA GSFC/D WEST 11-Astronomy

**NAG 5-1718 University of Alabama - University 1183**  
 SURFACE BRIGHTNESS PROFILES AND ENERGETICS OF INTRA-CLUSTER GAS IN COOL GALAXY CLUSTERS  
*Period Obligations*  
 08/13/1991-08/14/1994 FY93: \$0 TOTAL: \$25,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R E WHITE GSFC/R PETRE 11-Astronomy

**NAG 5-1973 University of Alabama - University 1184**  
 SURFACE BRIGHTNESS PROFILES AND ENERGETICS OF INTEGRAL GALAXY CLUSTERS  
*Period Obligations*  
 05/19/1992-05/31/1994 FY93: \$33,000 TOTAL: \$50,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R E WHITE GSFC/R PETRE 11-Astronomy

**NAG 5-2134 University of Alabama - University 1185**  
 OBSCURATION AND AGE EFFECTS IN STARBURST NUCLEI  
*Period Obligations*  
 11/09/1992-01/31/1994 FY93: \$5,000 TOTAL: \$5,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 W C KEEL GSFC/D WEST 11-Astronomy

**NAG 8-123 University of Alabama - University 1186**  
 SUMMER FACULTY FELLOWSHIP RESEARCH CONTIN. PROGRAM  
*Period Obligations*  
 12/12/1988-05/13/1992 FY93: \$0 TOTAL: \$1,009,444  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M FREEMAN MSFC/F SIX 99-Multi-Discip  
 R D IRWIN ....C CHAPPEL  
 W T SPRINGER

**NAG 8-154 University of Alabama - University 1187**  
 MECHANICAL ENGINEERING DESIGN PROBLEMS  
*Period Obligations*  
 03/12/1990-03/18/1993 FY93: \$0 TOTAL: \$15,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 C B EVCES MSFC/K S TYGIELSKI 46-Mech Engr

**NAG 8-162 University of Alabama - University 1188**  
 MECHANIC ENG DESIGN PROBLEMS  
*Period Obligations*  
 05/01/1990-05/06/1992 FY93: \$0 TOTAL: \$15,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 C R EVCES MSFC/J E WILLIAMSON 46-Mech Engr  
 ....F P THOMAS

**NAG 8-228 University of Alabama - University 1189**  
 COOLING FLOW SPECTRAIN GINGA GALAXY CLUSTERS  
*Period Obligations*  
 03/16/1992-03/15/1993 FY93: \$0 TOTAL: \$37,200  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R E WHITE MSFC/J VARGUS 11-Astronomy

**NAG 8-240 University of Alabama - University 1190**  
 ELECTROMECHANICAL ACTUATORS FOR DEEP SPACE MISSION  
*Period Obligations*  
 07/01/1992-08/16/1994 FY93: \$97,958 TOTAL: \$153,489  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 T HASKEW MSFC/R A WEIR 49-Engr, NEC  
 J WANDER ....M S HAMMOND

**NAG 8-279 University of Alabama - University 1191**  
 RESEARCH STUDY  
*Period Obligations*  
 01/14/1993-01/13/1994 FY93: \$50,050 TOTAL: \$50,050  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 K W WHITAKER MSFC/W T POWERS 13-Physics  
 K S KRISHNAKUMAR ....A E COOPER

**NAG 8-813 University of Alabama - University 1192**  
 MECHANICAL ENGINEERING DESIGN PROBLEMS  
*Period Obligations*  
 03/16/1990-12/31/1992 FY93: \$0 TOTAL: \$10,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 C R EVCES MSFC/C COLLEY 46-Mech Engr

**NAG 8-901 University of Alabama - University 1193**  
 ALTERNATE VEHICLES FOR ENGINE/VEHICLE OPTIMIZATOR  
*Period Obligations*  
 01/13/1992-08/15/1993 FY93: \$0 TOTAL: \$24,960  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J A MARTIN MSFC/R M NIXON 42-Astro Engr

**NAG 9-625 University of Alabama - University 1194**  
 AUTOMATING THE APPL OF GENETIC ALGORITHMS  
*Period Obligations*  
 08/18/1992-08/16/1993 FY93: \$0 TOTAL: \$20,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R E SMITH JSC/L WANG 51-Biological Sci

**NAGW 3072 University of Alabama - University 1195**  
 DEVELOPING SCIENTIFIC LITERACY THROUGH AEROSPACE EDUCATION  
*Period Obligations*  
 05/15/1992-08/15/1994 FY93: \$1,044 TOTAL: \$84,346  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D W SUNAI HQ/D GALLAWAY 99-Multi-Discip  
 K W WHITAKER  
 L M FREEMAN

**NAS 8-39715 University of Alabama - University 1196**  
 PARTICLE INGULFMENT AND PUSHING BY SOLIDIFYING INTERFACES  
*Period Obligations*  
 02/17/1993-02/16/1996 FY93: \$63,647 TOTAL: \$63,647  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D M STEFANESCU MSFC/I C YATES 19-Phys Sci, NEC  
 P A CURRERI  
 B K DHINDAW

**NASA'S UNIVERSITY PROGRAM**  
**ALABAMA (Continued)**

**NCC 8-23 University of Alabama - University 1197**  
 A STUDY OF THE USE OF CONTACT LOADING TO SIMULATE LOW VELOCITY

Period	Obligations	
05/12/1993-05/11/1994	FY93: \$29,892	TOTAL: \$29,892
Prin. Invest.	NASA Tech. Officer	CASE Category
A L HIGHSMITH	MSFC/F E LEDBETTER III	47-Materials Engr
	....W J PATTERSON	

**NGT 00-070-302 University of Alabama - University 1198**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED MINORITY FOCUS PROGRAM

Period	Obligations	
11/16/1992-08/31/1994	FY93: \$44,000	TOTAL: \$44,000
Prin. Invest.	NASA Tech. Officer	CASE Category
L T WORTZ	HQ/F SIX	46-Mech Engr

**NGT 00-070-303 University of Alabama - University 1199**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED MINORITY FOCUS PROGRAM

Period	Obligations	
10/26/1992-08/15/1994	FY93: \$44,000	TOTAL: \$44,000
Prin. Invest.	NASA Tech. Officer	CASE Category
R G BATSON	HQ/D K RUSSELL	47-Materials Engr

**NGT 00-090-224 University of Alabama - University 1200**  
 UNDERGRADUATE STUDENT RESEARCHERS (UMF) PROGRAM

Period	Obligations	
09/14/1993-08/14/1994	FY93: \$12,000	TOTAL: \$12,000
Prin. Invest.	NASA Tech. Officer	CASE Category
G SINGLETON	HQ/D K RUSSELL	99-Multi-Discip

**NAG 8-278 University of South Alabama 1201**  
 RESEARCH STUDY

Period	Obligations	
12/17/1992-05/30/1994	FY93: \$59,000	TOTAL: \$59,000
Prin. Invest.	NASA Tech. Officer	CASE Category
R E SPALL	MSFC/F SIX	19-Phys Sci, NEC
H A OMAR		

**ALASKA**

**NAG 5-2074 University of Alaska - Anchorage 1202**  
 ANALYSIS OF ALASKAN ARCTIC LAKES

Period	Obligations	
09/01/1992-08/31/1993	FY93: \$0	TOTAL: \$16,300
Prin. Invest.	NASA Tech. Officer	CASE Category
K M PETERSON	GSFC/D K HALL	39-Env Sci, NEC

**NAG 5-693 University of Alaska - Fairbanks 1203**  
 CO-INVEST. PROPOSAL FOR CORNELL UNIV SOUNDING OF THE CLEFT ION FOUNTAIN ENERGIZATION REGION (SCIFER)

Period	Obligations	
05/26/1992-02/28/1994	FY93: \$19,596	TOTAL: \$29,596
Prin. Invest.	NASA Tech. Officer	CASE Category
C S DEEHR	GSFC/L J EARLY	13-Physics
	....R H PLESS	

**NAG 5-699 University of Alaska - Fairbanks 1204**  
 FACILITIES AND RESEARCH INSTRUMENTATION DEVELOPMENT AT THE POKER FLAT RESEARCH RANGE

Period	Obligations	
04/14/1993-09/30/1995	FY93: \$6,965,000	TOTAL: \$6,965,000
Prin. Invest.	NASA Tech. Officer	CASE Category
S A KASOFU	WFF/B J FLOWERS	31-Atmos Sci
	....M J ELLIS	

**NAG 5-887 University of Alaska - Fairbanks 1205**  
 MEASUREMENTS ON THE SNOW OF INTERIOR AND ARCTIC ALASKA

Period	Obligations	
04/01/1987-07/31/1994	FY93: \$10,000	TOTAL: \$91,555
Prin. Invest.	NASA Tech. Officer	CASE Category
C S BENSON	GSFC/D K HALL	19-Phys Sci, NEC
	....J L FOSTER	

**NAG 5-1097 University of Alaska - Fairbanks 1206**  
 ATMOSPHERE IONOSPHERE MAGNETOSPHERE SYSTEM

Period	Obligations	
11/01/1988-03/31/1994	FY93: \$150,000	TOTAL: \$715,000
Prin. Invest.	NASA Tech. Officer	CASE Category
M H REES	GSFC/S A CURTIS	13-Physics
	....M H ACUNA	

**NAG 5-1504 University of Alaska - Fairbanks 1207**  
 A STUDY OF SOLAR WIND-MAGNETOSPHERE INTERACTION AT THE DAYSIDE AND NIGHTSIDE MAGNETOPAUSE

Period	Obligations	
03/19/1991-11/30/1993	FY93: \$230,000	TOTAL: \$580,000
Prin. Invest.	NASA Tech. Officer	CASE Category
L C LEE	GSFC/T J BIRMINGHAM	13-Physics

**NAG 5-1731 University of Alaska - Fairbanks 1208**  
 A STUDY OF PHYSICAL STRUCTURAL FACTORS AFFECTING THE SAR SIGNATURES OF ICE-COVERED ARCTIC AND SUB-AR

Period	Obligations	
08/01/1991-07/31/1994	FY93: \$53,276	TOTAL: \$154,105
Prin. Invest.	NASA Tech. Officer	CASE Category
M O JEFFRIES	GSFC/D K HALL	39-Env Sci, NEC
W F WEEKS		

**NAG 5-1748 University of Alaska - Fairbanks 1209**  
 POTENTIAL GREENHOUSE EFFECTS ON ICE SHEETS: MEASUREMENT OF ELEVATION CHANGES, AND MODELING

Period	Obligations	
08/15/1991-02/14/1993	FY93: \$0	TOTAL: \$38,991
Prin. Invest.	NASA Tech. Officer	CASE Category
C S LINGLE	GSFC/H J ZWALLY	39-Env Sci, NEC

**NAG 5-1780 University of Alaska - Fairbanks 1210**  
 ANALYSIS OF ELECTRIC FIELD DATA FROM DE-1 PLASMA WAVE INSTRUMENT

Period	Obligations	
09/10/1991-09/14/1992	FY93: \$0	TOTAL: \$29,932
Prin. Invest.	NASA Tech. Officer	CASE Category
D R WEIMER	GSFC/R A HOFFMAN	13-Physics
	....G D BULLOCK	

**NASA'S UNIVERSITY PROGRAM  
ALASKA (Continued)**

**NAG 5-1915 University of Alaska - Fairbanks 1211**  
ANALYSIS OF AURORAL IMAGES IN THE DYNAMIC EXPLORER PROGRAM  
*Period* *Obligations*  
02/26/1992-02/28/1994 FY93: \$0 TOTAL: \$88,764  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J D CRAVEN GSFC/G D BULLOCK 13-Physics  
...../R A HOFFMAN

**NAG 5-2249 University of Alaska - Fairbanks 1212**  
ANALYSIS OF DE-1 PWI ELECTRIC FIELD DATA  
*Period* *Obligations*  
04/30/1993-04/30/1994 FY93: \$14,802 TOTAL: \$14,802  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
D WEIMER GSFC/G D BULLOCK 19-Phys Sci, NEC

**NAG 5-5000 University of Alaska - Fairbanks 1213**  
SHAPED CHARGE INJECTION OF FIELD ALIGNED BA AND CA PLASMA TO INVESTIGATE THE PHYSICS OF MASSES VEPE  
*Period* *Obligations*  
03/29/1993-03/31/1994 FY93: \$82,756 TOTAL: \$82,756  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
E WESCOTT GSFC/L J EARLY 13-Physics  
...../P H PLESS

**NAG 5-5012 University of Alaska - Fairbanks 1214**  
OPTICAL IMAGING OF CLOUD-TO-STRATOSPHERE/MEMO- SPHERE LIGHTNING OVER THE AMAZON BASIN (CS/LAB)  
*Period* *Obligations*  
05/14/1993-05/31/1994 FY93: \$125,998 TOTAL: \$125,998  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
D D SENTMAN GSFC/L J EARLY 13-Physics  
...../R H PLESS

**NAG 5-5013 University of Alaska - Fairbanks 1215**  
MICRO-SCALE AURORAL IMAGING TO COMPLEMENT THE AURORAL MICROPHYSICS ROCKET EXPERIMENT  
*Period* *Obligations*  
05/19/1993-12/31/1993 FY93: \$5,000 TOTAL: \$5,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
T J HALLINAN GSFC/L J EARLY 11-Astronomy  
...../R H PLESS

**NAG 6-1 University of Alaska - Fairbanks 1216**  
FLUORESCENT PLASMA TRACER AND PERTURBATION EXPERIMENTS FROM SOUNDING ROCKETS  
*Period* *Obligations*  
01/01/1980-01/31/1994 FY93: \$0 TOTAL: \$2,109,549  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
E M WESCOTT GSFC/L J EARLY 19-Phys Sci, NEC  
...../R H PLESS

**NAG 6-100 University of Alaska - Fairbanks 1217**  
SHAPED CHARGE INJECTION OF FIELD ALIGNED BA AND CA PLASMA TO INVESTIGATE THE PHYSICS OF MASS DEPENDEN  
*Period* *Obligations*  
03/29/1993-03/31/1994 FY93: \$0 TOTAL: \$0  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
E WESCOTT GSFC/L J EARLY 13-Physics  
...../R H PLESS

**NAGW 841 University of Alaska - Fairbanks 1218**  
GEOCHEMICAL AND KINETIC STUDIES ON MICROBIAL AEROBIC OXIDATION  
*Period* *Obligations*  
10/01/1985-12/31/1991 FY93: \$0 TOTAL: \$852,246  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
W S REEBURGH HQ/M J KURYLO 39-Env Sci, NEC  
...../R T WATSON

**NAGW 1342 University of Alaska - Fairbanks 1219**  
DEVELOPMENT SOLAR-TERRESTRIAL RES. PRG. FOR NINETIES  
*Period* *Obligations*  
06/27/1988-07/31/1993 FY93: \$15,186 TOTAL: \$181,665  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J G ROEDERER HQ/M M MELLOTT 13-Physics  
...../T W PERRY

**NAGW 1835 University of Alaska - Fairbanks 1220**  
THE INFLUENCE OF THE HYDROLOGIC CYCLE ON THE EXTEN T OF SEA ICE WITH CLIMATIC IMPLICATIONS  
*Period* *Obligations*  
08/09/1990-01/31/1993 FY93: \$0 TOTAL: \$287,988  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
K G DEAN HQ/J C DODGE 39-Env Sci, NEC  
...../J S THEON

**NAGW 2165 University of Alaska - Fairbanks 1221**  
IMPACT OF STRATOSPHERIC AEROSOLS AND TROPOSPHERIC CLOUDS OF STRATOSPHERIC PHOTODISSOCIATION HEATING  
*Period* *Obligations*  
06/20/1990-03/31/1994 FY93: \$72,046 TOTAL: \$242,957  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
K STAMNES HQ/R D MCPETERS 31-Atmos Sci  
...../M J PRATHER

**NAGW 2517 University of Alaska - Fairbanks 1222**  
APPLICATION OF SAR AND AVHRR IMAGERY TO POLYMYAS O F THE BERING AND CHUKCHI SEAS  
*Period* *Obligations*  
05/23/1991-06/30/1993 FY93: \$0 TOTAL: \$237,074  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
T J WEINGARTNER HQ/R H THOMAS 33-Oceanography

**NAGW 2519 University of Alaska - Fairbanks 1223**  
UTILIZATION OF SAR DATA IN ARCTIC HYDROLOGY MODEL NG  
*Period* *Obligations*  
07/25/1991-07/31/1994 FY93: \$102,982 TOTAL: \$334,490  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
D L KANE HQ/R H THOMAS 39-Env Sci, NEC

**NAGW 2614 University of Alaska - Fairbanks 1224**  
SATELLITE RADAR ALTIMETRY AND ICE SHEET DYNAMICS  
*Period* *Obligations*  
07/31/1991-06/30/1994 FY93: \$94,190 TOTAL: \$253,665  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
C LINGLE HQ/R H THOMAS 39-Env Sci, NEC  
...../R A SCHIFFER

**NASA'S UNIVERSITY PROGRAM**  
**ALASKA (Continued)**

**NAGW 2637 University of Alaska - Fairbanks 1225**  
 THE SEA ICE CIRCULATION OF THE BERING SEA FROM ERS -1  
 SYNTHETIC APERTURE RADAR IMAGERY

Period	Obligations	
07/15/1991-06/30/1994	FY93: \$60,763	TOTAL: \$175,290
Prin. Invest.	NASA Tech. Officer	CASE Category
H J NIEBAUER	HQ/R H THOMAS	33-Oceanography

**NAGW 3037 University of Alaska - Fairbanks 1232**  
 COMPOSITION AND TEMPERATURES OF THE AURORAL IONOSP  
 HERE

Period	Obligations	
05/15/1992-03/31/1994	FY93: \$40,678	TOTAL: \$80,081
Prin. Invest.	NASA Tech. Officer	CASE Category
D LUMMERZHEIM	HQ/D L REASONER	13-Physics
	....J D BOHLIN	

**NAGW 2716 University of Alaska - Fairbanks 1226**  
 NAGW-2716/UNIV ALASKA INTERACTION BETWEEN ICE DEFO  
 RMATION, ICE THICKNESS DISTRIBUTIONS, ICE PROPERT

Period	Obligations	
09/25/1991-09/30/1993	FY93: \$0	TOTAL: \$201,148
Prin. Invest.	NASA Tech. Officer	CASE Category
W WEEKS	HQ/R A SCHIFFER	39-Env Sci, NEC
S LI	....D M BUTLER	

**NAGW 3436 University of Alaska - Fairbanks 1233**  
 MODEL AURORAL ELECTRON PRECIPITATION PATTERNS FOR  
 COUPLED THERMO. ION. SIM

Period	Obligations	
03/10/1993-03/31/1994	FY93: \$49,710	TOTAL: \$49,710
Prin. Invest.	NASA Tech. Officer	CASE Category
J D CRAVEN	HQ/M M MELLOTT	13-Physics
	....G L WITHBROE	

**NAGW 2735 University of Alaska - Fairbanks 1227**  
 AN INVESTIGATION OF THE THETA AURORA

Period	Obligations	
09/19/1991-03/31/1993	FY93: \$0	TOTAL: \$50,740
Prin. Invest.	NASA Tech. Officer	CASE Category
J D CRAVEN	HQ/M M MELLOTT	11-Astronomy
	....J D BOHLIN	

**NAGW 3441 University of Alaska - Fairbanks 1234**  
 ASYMETRIC DEVELOPMENT OF THE AURORAL BULGE DURING  
 SUBSTORM EXPANSION

Period	Obligations	
03/10/1993-02/28/1994	FY93: \$46,907	TOTAL: \$46,907
Prin. Invest.	NASA Tech. Officer	CASE Category
J D CRAVEN	HQ/E C WHIPPLE	13-Physics
	....G L WITHBROE	

**NAGW 2827 University of Alaska - Fairbanks 1228**  
 SAR INVESTIGATIONS OF GLACIERS IN NORTHWESTERN NOR TH  
 AMERICA

Period	Obligations	
01/03/1992-11/30/1993	FY93: \$81,027	TOTAL: \$157,161
Prin. Invest.	NASA Tech. Officer	CASE Category
C S LINGLE	HQ/R A SCHIFFER	39-Env Sci, NEC
	....D M BUTLER	

**NAGW 3663 University of Alaska - Fairbanks 1235**  
 SYMPOSIUM SUPPORT: SECOND INTERNATIONAL CONFERENC E  
 ON SUBSTORMS

Period	Obligations	
06/18/1993-03/31/1994	FY93: \$10,000	TOTAL: \$10,000
Prin. Invest.	NASA Tech. Officer	CASE Category
S AKASOFU	HQ/E C WHIPPLE	13-Physics
	....J D BOHLIN	

**NAGW 2829 University of Alaska - Fairbanks 1229**  
 AN ARCTIC MODELING CENTER ON OCEAN ICE ATMOSPHERE  
 INTERACTIONS

Period	Obligations	
01/03/1992-12/31/1993	FY93: \$183,347	TOTAL: \$364,650
Prin. Invest.	NASA Tech. Officer	CASE Category
G WELER	HQ/R A SCHIFFER	39-Env Sci, NEC
	....D M BUTLER	

**NAGW 3727 University of Alaska - Fairbanks 1236**  
 ELEVATION CHANGES OF MOUNTAIN GLACIERS AS MEASURED  
 BY AIRBORNE LASER ALTIMETRY

Period	Obligations	
09/10/1993-08/31/1996	FY93: \$128,129	TOTAL: \$128,129
Prin. Invest.	NASA Tech. Officer	CASE Category
W D HARRISON	HQ/R H THOMAS	39-Env Sci, NEC
K A ECHELMEYER	....R A SCHIFFER	

**NAGW 2857 University of Alaska - Fairbanks 1230**  
 3-DIMENSIONAL MORPHOLOGY OF AURORAS BASED ON TRIAN  
 GULATION FROM THE SPACE SHUTTLE

Period	Obligations	
01/31/1992-03/31/1995	FY93: \$59,267	TOTAL: \$116,862
Prin. Invest.	NASA Tech. Officer	CASE Category
T J HALINAN	HQ/D L REASONER	13-Physics
	....J D BOHLIN	

**NAGW 3728 University of Alaska - Fairbanks 1237**  
 EXPERIMENTAL STUDY OF PHYSICAL AND CHEMICAL PROPER TIES  
 OF CLOUD CONDENSATION NUCLEI

Period	Obligations	
09/03/1993-06/30/1996	FY93: \$73,560	TOTAL: \$73,560
Prin. Invest.	NASA Tech. Officer	CASE Category
G E SHAW	HQ/J T SUTTERS	31-Atmos Sci
R L BENNER	....A C JANETOS	

**NAGW 2972 University of Alaska - Fairbanks 1231**  
 INVESTIGATION OF THE ICE-TIDE INTERACTION IN THE A RCTIC  
 OCEAN

Period	Obligations	
03/20/1992-12/31/1993	FY93: \$106,628	TOTAL: \$210,379
Prin. Invest.	NASA Tech. Officer	CASE Category
Z KOWALIK	HQ/R A SCHIFFER	33-Oceanography
	....D M BUTLER	

**NAS 3-26401 University of Alaska - Fairbanks 1238**  
 ACTS PROPAGATION EXPERIMENTS IN ALASKA

Period	Obligations	
05/24/1993-08/24/1995	FY93: \$209,530	TOTAL: \$209,530
Prin. Invest.	NASA Tech. Officer	CASE Category
C E MAYER	LERC/R J GUNDERMAN	19-Phys Sci, NEC

# NASA'S UNIVERSITY PROGRAM

## ALASKA (Continued)

**NAS 5-31637 University of Alaska - Fairbanks 1239**  
 OPERATIONS AND MAINTENANCE OF POKER FLAT RESEARCH RANGE  

Period	Obligations
11/01/1989-10/31/1993	FY93: \$4,982,494 TOTAL: \$14,542,085
Prin. Invest.	NASA Tech. Officer CASE Category
C DEEHR	GSFC/W A BRENCE 31-Atmos Sci
	....C F MILLINER

**NAS 5-32393 University of Alaska - Fairbanks 1240**  
 OPERATION AND MANAGEMENT OF ALASKA SYNTHETIC APERTURE RADAR FACILITY  

Period	Obligations
04/01/1993-04/01/1998	FY93: \$4,394,800 TOTAL: \$4,394,800
Prin. Invest.	NASA Tech. Officer CASE Category
G WELLER	GSFC/G HUNOLT 39-Env Sci, NEC

**NAS 8-36321 University of Alaska - Fairbanks 1241**  
 FROM CRESS  

Period	Obligations
04/12/1985-12/31/1993	FY93: \$0 TOTAL: \$1,495,560
Prin. Invest.	NASA Tech. Officer CASE Category
E M WESCOTT	MSFC/T T LITTLE 31-Atmos Sci

**NCA 2-672 University of Alaska - Fairbanks 1242**  
 THERMAL AND HYDROLOGIC DYNAMICS OF AND ARCTIC WETL AND PRELIMINARY INVESTIGATION  

Period	Obligations
11/07/1991-11/14/1992	FY93: \$0 TOTAL: \$15,000
Prin. Invest.	NASA Tech. Officer CASE Category
L D HINZMAN	ARC/D PETERSON 32-Geological Sci

**NCA 5-112 University of Alaska - Fairbanks 1243**  
 PROCESSING SYNTHETIC APERTURE RADAR DATA  

Period	Obligations
04/27/1988-02/28/1994	FY93: \$1,475,893 TOTAL: \$10,750,080
Prin. Invest.	NASA Tech. Officer CASE Category
J MILLER	GSFC/G H TROFFORD 11-Astronomy
W F WEEKS	
G WELLER	

**NGT 00-030-039 University of Alaska - Fairbanks 1244**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  

Period	Obligations
09/23/1991-08/31/1994	FY93: \$22,000 TOTAL: \$66,000
Prin. Invest.	NASA Tech. Officer CASE Category
E BREITENBERGER	HQ/D M BUTLER 39-Env Sci, NEC
G WENDLER	....G S WILSON

**NGT 00-030-088 University of Alaska - Fairbanks 1245**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  

Period	Obligations
09/06/1991-08/31/1994	FY93: \$22,000 TOTAL: \$66,000
Prin. Invest.	NASA Tech. Officer CASE Category
W MASLOWSKI	HQ/D M BUTLER 33-Oceanography
Z KOWALIK	....G S WILSON

**NGT 00-040-022 University of Alaska - Fairbanks 1246**  
 NATIONAL SPACE GRANT COLLEGE AND FELLOWSHIP PROGRA M  

Period	Obligations
03/29/1991-02/28/1994	FY93: \$173,000 TOTAL: \$493,000
Prin. Invest.	NASA Tech. Officer CASE Category
J G HAWKINS	HQ/E T SCHWARTZ 99-Multi-Discip

**NGT 00-050-534 University of Alaska - Fairbanks 1247**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  

Period	Obligations
09/18/1989-06/30/1992	FY93: \$0 TOTAL: \$62,000
Prin. Invest.	NASA Tech. Officer CASE Category
W F WEEKS	HQ/F C OWENS 13-Physics

**NGT 00-050-599 University of Alaska - Fairbanks 1248**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  

Period	Obligations
09/27/1990-02/28/1994	FY93: \$0 TOTAL: \$44,000
Prin. Invest.	NASA Tech. Officer CASE Category
H J NIEBAUER	HQ/F C OWENS 33-Oceanography

## ARIZONA

**NAG 1-562 Arizona State University 1249**  
 ELECTROMAGNETIC BACKSCATTERING BY CORNER REFLECTORS  

Period	Obligations
01/22/1985-01/31/1994	FY93: \$53,269 TOTAL: \$359,853
Prin. Invest.	NASA Tech. Officer CASE Category
C A BALANIS	LARC/M C GILREATH 45-Elec Engr

**NAG 1-937 Arizona State University 1250**  
 TRANSITION STUDIES ON A SWEEP-WING MODEL  

Period	Obligations
01/09/1989-12/31/1993	FY93: \$155,171 TOTAL: \$625,495
Prin. Invest.	NASA Tech. Officer CASE Category
W S SARIC	LARC/J R DAGENHART 41-Aero Engr

**NAG 1-1080 Arizona State University 1251**  
 NEAR-WALL MODELLING OF COMPRESSIBLE TURBULENT FLOW  

Period	Obligations
12/22/1989-04/30/1993	FY93: \$49,604 TOTAL: \$204,473
Prin. Invest.	NASA Tech. Officer CASE Category
R SO	LARC/T B GATSKI 41-Aero Engr

**NAG 1-1082 Arizona State University 1252**  
 ADVANCED ELECTROMAGNETIC METHODS FOR AEROSPACE VEHICLES  

Period	Obligations
12/15/1989-06/30/1993	FY93: \$0 TOTAL: \$300,000
Prin. Invest.	NASA Tech. Officer CASE Category
C A BALANIS	LARC/G C BARBER 45-Elec Engr
	....T G CAMPBELL

**NAG 1-1111 Arizona State University 1253**  
 CONTROL OF UNSTABLE WAVES IN THREE-DIMENSIONAL BOUNDARY LAYERS  

Period	Obligations
03/01/1990-02/22/1994	FY93: \$51,150 TOTAL: \$201,996
Prin. Invest.	NASA Tech. Officer CASE Category
W S SARIC	LARC/D M BUSHNELL 41-Aero Engr

**NASA'S UNIVERSITY PROGRAM**  
**ARIZONA (Continued)**

**NAG 1-1153 Arizona State University 1254**  
 SURFACE-SURFACE INTERSECTION.  
*Period Obligations*  
 06/13/1990-12/31/1992 FY93: \$1 TOTAL: \$49,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R E BARNHILL LARC/R E SMITH 29-Math/Computer,NEC  
 ....J J LAMBIOTTE

**NAG 1-1158 Arizona State University 1255**  
 NUMERICAL SIMULATION OF SWEPT-WING FLOWS.  
*Period Obligations*  
 07/09/1990-08/04/1994 FY93: \$70,000 TOTAL: \$150,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 H L REED LARC/C L STREETT 41-Aero Engr  
 ....A KUMAR

**NAG 1-1183 Arizona State University 1256**  
 ANTENNA PATTERN CONTROL USING IMPEDENCE SURFACES  
*Period Obligations*  
 09/13/1990-09/15/1993 FY93: \$0 TOTAL: \$42,689  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 C A BALANIS LARC/G C BARBER 45-Elec Engr

**NAG 1-1341 Arizona State University 1257**  
 DYNAMICS AND CONTROL OF HYPERSONIC VEHICLES  
 INCREMENTAL FUNDING THROUGH DECEMBER 31, 1991  
*Period Obligations*  
 09/17/1991-12/31/1993 FY93: \$24,425 TOTAL: \$167,425  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D K SCHMIDT LARC/I M GREGORY 41-Aero Engr

**NAG 1-1399 Arizona State University 1258**  
 A CONFERENCE ON NEAR-WALL TURBULANCE AND FLOWS  
*Period Obligations*  
 03/04/1992-06/30/1993 FY93: \$28,750 TOTAL: \$43,750  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R M SO LARC/T B GATSKI 41-Aero Engr  
 B E LAUNDER  
 C G SPEZIALE

**NAG 2-771 Arizona State University 1259**  
 OPTIMUM DESIGN OF HIGH-SPEED PROP-ROTORS  
*Period Obligations*  
 03/26/1992-11/14/1993 FY93: \$0 TOTAL: \$29,996  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A CHATTOPADHYAY ARC/J F MADDEN 41-Aero Engr  
 ....J J TOTAH

**NAG 2-844 Arizona State University 1260**  
 AERODYNAMIC REQUIREMENTS FOR BVI NOISE CONTROL  
*Period Obligations*  
 06/10/1993-01/31/1994 FY93: \$39,533 TOTAL: \$39,533  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 V WELLS ARC/Y H YU 41-Aero Engr  
 ....J M GALLMAN

**NAG 3-998 Arizona State University 1261**  
 COOPERATIVE CONTROL THEORY WITH APPLICATION TO FLIGHT/PROPULSION CONTROL  
*Period Obligations*  
 02/16/1989-02/07/1994 FY93: \$50,000 TOTAL: \$259,999  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D K SCHMIDT LERC/R E BULLARD 41-Aero Engr

**NAG 3-1139 Arizona State University 1262**  
 THE DEVELOPMENT OF AN ADVANCED HIGH-FREQUENCY PARTIAL DISCHARGE MEASURING SYSTEM CONCEPTS  
*Period Obligations*  
 02/23/1990-02/20/1994 FY93: \$0 TOTAL: \$54,548  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 G G KARADY LERC/G R SUNDBERG 45-Elec Engr  
 M D SIRKIS ....S DOMITZ

**NAG 5-481 Arizona State University 1263**  
 ULTRAVIOLET OBSERVATIONS OF GALACTIC NOVAE DURING THEIR OUTBURST  
*Period Obligations*  
 10/01/1984-01/31/1994 FY93: \$6,270 TOTAL: \$195,349  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S G STARRFIELD GSFC/D K WEST 11-Astronomy  
 S KENYON  
 G FERLAND

**NAG 5-547 Arizona State University 1264**  
 K GIANT SPECTRA FOR STELLAR POPULATION MODELS  
*Period Obligations*  
 06/01/1985-09/30/1993 FY93: \$0 TOTAL: \$105,909  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D BURSTEIN GSFC/Y KONDO 11-Astronomy  
 C C WU  
 R W O'CONNELL

**NAG 5-996 Arizona State University 1265**  
 PROBING THE VOIDS  
*Period Obligations*  
 09/01/1987-01/31/1994 FY93: \$14,520 TOTAL: \$81,975  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A P COWLEY GSFC/D K WEST 11-Astronomy  
 F D HARTWICK

**NAG 5-1455 Arizona State University 1266**  
 ROSAT DEEP SURVEY BEST STUDIED HIGH LATITUDE AREAS  
*Period Obligations*  
 09/11/1990-09/30/1991 FY93: \$0 TOTAL: \$41,970  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R A WINDHORST GSFC/R PETRE 11-Astronomy

**NAG 5-1576 Arizona State University 1267**  
 IDENTIFICATION OF LMC X-RAY SOURCES USING ROSAT HR IMAGES; X-RAY LIGHT CURVE FOR AN ECLIPSING...  
*Period Obligations*  
 05/01/1991-05/14/1993 FY93: \$0 TOTAL: \$36,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A P COWLEY GSFC/R PETRE 11-Astronomy

**NAG 5-1743 Arizona State University 1268**  
 UV EXTENSION AND IR EMISSION IN DIFFUSE HII REGIONS  
*Period Obligations*  
 08/15/1991-08/14/1993 FY93: \$0 TOTAL: \$46,911  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 P A AANNSTAD GSFC/D WEST 11-Astronomy



**NASA'S UNIVERSITY PROGRAM**  
**ARIZONA (Continued)**

**NAG 5-1744 Arizona State University 1269**  
 THE SOFT X-RAY TRANSIENT CEN X-4 IN QUIESCENCE  
*Period Obligations*  
 08/15/1991-02/14/1993 FY93: \$0 TOTAL: \$37,385  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 P C SCHMIDTKE GSFC/R PETRE 11-Astronomy

**NAG 5-1802 Arizona State University 1270**  
 ANALYSIS OF IUE SPECTRA OF NOVAE IN OUTBURST  
*Period Obligations*  
 09/18/1991-09/30/1994 FY93: \$7,600 TOTAL: \$28,799  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S G STARRFIELD GSFC/D WEST 11-Astronomy

**NAG 5-1976 Arizona State University 1271**  
 GLOBAL PROPERTIES OF MAGELLANIC CLOUD STELLAR X-RA  
*Period Obligations*  
 05/04/1992-05/14/1993 FY93: \$25,000 TOTAL: \$42,602  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A P COWLEY GSFC/R PETRE 11-Astronomy

**NAG 5-2101 Arizona State University 1272**  
 THE UV SPECTRUM OF THE LOW-MASS X-RAY BINARY 2S092  
 1-630  
*Period Obligations*  
 09/15/1992-03/31/1994 FY93: \$6,000 TOTAL: \$6,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 P C SCHMIDTKE GSFC/D WEST 11-Astronomy

**NAG 5-2211 Arizona State University 1273**  
 BLAST WAVE/ISM INTERACTIONS IN THE EASTERN SUBSHEL L OF  
 IC 443  
*Period Obligations*  
 02/18/1993-02/28/1994 FY93: \$37,000 TOTAL: \$37,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J J HESTER GSFC/R PETRE 11-Astronomy

**NAG 5-2322 Arizona State University 1274**  
 A ROSAT DEEP SURVEY OF THE BEST STUDIES HIGH LATIT UDE  
 AREAS  
*Period Obligations*  
 07/22/1993-07/31/1994 FY93: \$15,000 TOTAL: \$15,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R A WINDHORST GSFC/R PETRE 11-Astronomy

**NAG 9-59 Arizona State University 1275**  
 MINERALOGY OF CARBONACEOUS CHONDRITES  
*Period Obligations*  
 02/15/1983-02/01/1994 FY93: \$0 TOTAL: \$1,076,650  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 P R BUSECK JSC/I D BROWN 32-Geological Sci  
 K TOMEOKA

**NAG 9-183 Arizona State University 1276**  
 METEORTIE STUDY  
*Period Obligations*  
 10/01/1986-10/01/1993 FY93: \$0 TOTAL: \$77,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 C B MOORE JSC/I D BROWNE 32-Geological Sci

**NAGW 529 Arizona State University 1277**  
 FIELD MEASUREMENTS OF THE 1983 EAST RIFT BASALT FLOWS  
 AT KITAUEA VOLCANO  
*Period Obligations*  
 03/01/1984-12/31/1993 FY93: \$78,400 TOTAL: \$287,060  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J FINK HQ/J R UNDERWOOD 32-Geological Sci  
 ....J M BOYCE

**NAGW 547 Arizona State University 1278**  
 SPECTRESCOPEY OF COMETS  
*Period Obligations*  
 02/15/1984-11/30/1993 FY93: \$30,000 TOTAL: \$614,122  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S WYCKOFF HQ/H C BRINTON 11-Astronomy  
 ....J H RAHE

**NAGW 943 Arizona State University 1279**  
 THERMAL INFRARED SPECTRAL MEASUREMENTS OF GEOLOGIC  
 MATERIAL  
*Period Obligations*  
 07/15/1986-12/31/1993 FY93: \$91,601 TOTAL: \$414,439  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 P R CHRISTENSEN HQ/J M BOYCE 32-Geological Sci  
 ....J M BOYCE

**NAGW 1306 Arizona State University 1280**  
 MAPPING PLANETARY AND SATELLITE SURFACES  
*Period Obligations*  
 08/21/1988-12/31/1993 FY93: \$76,253 TOTAL: \$441,728  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R GREELEY HQ/J M BOYCE 32-Geological Sci  
 ....D H SCOTT

**NAGW 1395 Arizona State University 1281**  
 EVOLUTION OF PHOTOSYNTHESIS  
*Period Obligations*  
 08/08/1988-06/30/1994 FY93: \$31,000 TOTAL: \$333,359  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R E BLANKENSHIP HQ/J D RUMMEL 51-Biological Sci

**NAGW 1654 Arizona State University 1282**  
 COMPREHENSIVE INVESTIGATION OF HGCDTE METAL-ORGANIC  
 CHEM. VAP  
*Period Obligations*  
 03/09/1989-03/14/1993 FY93: \$0 TOTAL: \$223,600  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 G B RAUPP HQ/J K ALEXANDER 47-Materials Engr  
 ....D A HOLLAND

**NAGW 1740 Arizona State University 1283**  
 FLUID DYNAMICS OF MULTIPHASE FLOW IN VOLCANIC  
 ENVIRONMENTS  
*Period Obligations*  
 04/18/1989-10/31/1993 FY93: \$0 TOTAL: \$114,400  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 SANDERS HQ/J R UNDERWOOD 32-Geological Sci

**NASA'S UNIVERSITY PROGRAM**  
**ARIZONA (Continued)**

**NAGW 1774 Arizona State University 1284**  
 GEOLOGIC MAPPING OF HADRIACA PATERA AND TYRRHENA PATERA  
*Period Obligations*  
 06/21/1989-03/31/1994 FY93: \$3,800 TOTAL: \$46,549  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R GREELEY HQ/J R UNDERWOOD 32-Geological Sci

**NAGW 2274 Arizona State University 1291**  
 EARLY ATMOSPHERE/MAGNA OCEAN EQUILIBRIA; EXPERIMENTAL DETERMINATION OF NITROGEN, AMMONIA, AND CARBO  
*Period Obligations*  
 05/21/1991-10/31/1993 FY93: \$30,000 TOTAL: \$89,998  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J R HOLLOWAY HQ/J A NUTH 19-Phys Sci, NEC

**NAGW 1899 Arizona State University 1285**  
 ORGANIC CHEMISTRY OF CARBONACEOUS METEORITES  
*Period Obligations*  
 10/31/1989-09/30/1993 FY93: \$95,000 TOTAL: \$380,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J R CRONIN HQ/J D RUMMEL 32-Geological Sci

**NAGW 2276 Arizona State University 1292**  
 OXYGEN ISOTOPIC HETEROGENEITY IN OLIVINE AND PYROXENE FROM ORDINARY, CARBONACEOUS AND ENSTATITE CHON.  
*Period Obligations*  
 12/06/1990-10/31/1993 FY93: \$20,423 TOTAL: \$61,268  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R L HERVIG HQ/J A NUTH 19-Phys Sci, NEC

**NAGW 2064 Arizona State University 1286**  
 NAGW-2064/ARIZONA STATE UNIV/STUDIES OF MARTIAN AEOLIAN GEOLOGY  
*Period Obligations*  
 05/04/1990-09/30/1993 FY93: \$80,000 TOTAL: \$304,998  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R GREELEY HQ/T A MAXWELL 32-Geological Sci

**NAGW 2289 Arizona State University 1293**  
 MARS SURFACE COMPOSITION AND PROCESSES  
*Period Obligations*  
 06/13/1991-11/30/1993 FY93: \$35,000 TOTAL: \$105,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 P R CHRISTENSEN HQ/T A MAXWELL 32-Geological Sci

**NAGW 2102 Arizona State University 1287**  
 GEOLOGICAL STUDIES IN PLANETOLOGY  
*Period Obligations*  
 05/04/1990-09/30/1993 FY93: \$195,163 TOTAL: \$912,799  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R GREELEY HQ/T A MAXWELL 32-Geological Sci

**NAGW 2343 Arizona State University 1294**  
 INTEGRATED INVESTIGATIONS OF TRITONS ERUPTIVE PLUMES  
*Period Obligations*  
 02/15/1991-11/30/1993 FY93: \$0 TOTAL: \$70,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 C SANDERS HQ/W L QUAIDE 19-Phys Sci, NEC

**NAGW 2221 Arizona State University 1288**  
 CO2 AND H2O IN MARTIAN MAGMAS: PRE-ERUPTION LEVELS AND DEGASSING  
*Period Obligations*  
 02/22/1991-09/30/1993 FY93: \$54,991 TOTAL: \$165,362  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J R HOLLOWAY HQ/J M BOYCE 32-Geological Sci

**NAGW 2389 Arizona State University 1295**  
 NAGW-2389/ARIZONA STATE UNIV/ADVANCED COMMUNICATIONS TECHNOLOGY SATELLITE (ACTS) PHASE I  
*Period Obligations*  
 02/15/1991-03/31/1992 FY93: \$0 TOTAL: \$49,712  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J E MAISEL HQ/D A OLMSTEAD 99-Multi-Discip  
 P H YOUNG

**NAGW 2241 Arizona State University 1289**  
 NAGW-2241/ARIZONA STATE UNIV/COMETS AS PROBES OF A STAR-FORMING ENVIRONMENT  
*Period Obligations*  
 05/23/1991-10/31/1993 FY93: \$33,400 TOTAL: \$100,200  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S WYCOFF HQ/J A NUTH 19-Phys Sci, NEC

**NAGW 2622 Arizona State University 1296**  
 NAGW-2622/ARIZONA STATE UNIV/GEOLOGY OF ANCIENT VOLCANOES, NORTHERN PLAINS, AND POTENTIAL LANDING SITE  
*Period Obligations*  
 08/21/1991-04/30/1994 FY93: \$75,000 TOTAL: \$120,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R GREELEY HQ/W L QUAIDE 32-Geological Sci

**NAGW 2273 Arizona State University 1290**  
 COSMOCHEMISTRY AND THE ORIGIN OF SOLAR SYSTEMS  
*Period Obligations*  
 05/21/1991-10/31/1993 FY93: \$25,027 TOTAL: \$75,027  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J W LARIMER HQ/J A NUTH 19-Phys Sci, NEC

**NAGW 2628 Arizona State University 1297**  
 NAGW-2628/ARIZONA STATE UNIV/MODEL ATMOSPHERE ANALYSES OF ULTRAVIOLET SPECTRA OF NOVAE IN OUTBURST  
*Period Obligations*  
 08/09/1991-04/30/1994 FY93: \$81,600 TOTAL: \$239,593  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S G STARRFIELD HQ/G S KUTTER 11-Astronomy  
 ....G R RIEGLER

**NASA'S UNIVERSITY PROGRAM**  
**ARIZONA (Continued)**

**NAGW 2949 Arizona State University 1298**  
MARS ANALOG SITE SELECTION STUDY  
*Period Obligations*  
03/04/1992-01/31/1994 FY93: \$55,000 TOTAL: \$110,261  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R GREELEY HQ/J M BOYCE 32-Geological Sci

**NAS 5-31371 Arizona State University 1306**  
EOS INVESTIGATION 'ADVANCED SPACEBORNE THERMAL EMISSION AND REFLECTION'  
*Period Obligations*  
12/23/1991-12/22/2001 FY93: \$57,500 TOTAL: \$105,500  
*Prin. Invest. NASA Tech. Officer CASE Category*  
P CHRISTENSEN GSFC/H BLODGET 39-Env Sci, NEC

**NAGW 2989 Arizona State University 1299**  
SUBMILLIMETER DIRECT ABSORPTION/B EAM SPECTROSCOPY  
*Period Obligations*  
03/24/1992-01/31/1994 FY93: \$50,000 TOTAL: \$100,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
L M ZIURYS HQ/L J CAROFF 11-Astronomy  
T C STEIMLE

**NCA 2-745 Arizona State University 1307**  
HYBRID LAMINAR FLOW CONTROL EXPERIMENTS IN THE NASA-AMES, 11-FOOT TUNNEL  
*Period Obligations*  
08/05/1992-03/31/1993 FY93: \$0 TOTAL: \$11,893  
*Prin. Invest. NASA Tech. Officer CASE Category*  
W SARIC ARC/D J KOGA 41-Aero Engr  
....R A KENNELLY

**NAGW 3065 Arizona State University 1300**  
NAGW-3065/ARIZONA STATE UNIV/MOLECULAR CLOUD DIAGNOSTICS OF SOLAR NEBULA CHEMISTRY  
*Period Obligations*  
05/11/1992-03/31/1994 FY93: \$30,000 TOTAL: \$45,300  
*Prin. Invest. NASA Tech. Officer CASE Category*  
I M ZIURYS HQ/J A NUTH 19-Phys Sci, NEC

**NCA 2-778 Arizona State University 1308**  
MULTIDISCIPLINARY DESIGN OPTIMIZATION USING MULTIOBJECTIVE FORMULATION TECHNIQUES  
*Period Obligations*  
02/04/1993-01/14/1995 FY93: \$40,000 TOTAL: \$40,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
A CHATTOPADHYAY ARC/T A EDWARDS 41-Aero Engr

**NAGW 3386 Arizona State University 1301**  
MATRIX MINERALOGY OF CARBONACEOUS CHONDRITE METEORITES  
*Period Obligations*  
02/24/1993-02/14/1994 FY93: \$128,750 TOTAL: \$128,750  
*Prin. Invest. NASA Tech. Officer CASE Category*  
P R BUSECK HQ/H C BRINTON 32-Geological Sci

**NCA 2-787 Arizona State University 1309**  
ISOTOPIC ANALYSIS OF METEORITE SULFUR AND ORGANOSULFUR COMPOUNDS  
*Period Obligations*  
02/05/1993-08/14/1993 FY93: \$28,195 TOTAL: \$28,195  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J R CRONIN ARC/S CHANG 12-Chemistry

**NAGW 3518 Arizona State University 1302**  
VENUS AEOLIAN GEOLOGY AND GEOLOGIC MAPPING  
*Period Obligations*  
04/09/1993-03/31/1994 FY93: \$80,000 TOTAL: \$80,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R GREELEY HQ/J T BERGSTRALH 32-Geological Sci

**NCC 2-346 Arizona State University 1310**  
LABORATORY SIMULATIONS OF MARTIAN AND VENUSIAN AEOPROCESSES  
*Period Obligations*  
03/01/1985-02/28/1994 FY93: \$121,740 TOTAL: \$846,308  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R GREELEY ARC/B F SMITH 32-Geological Sci  
J MARSHALL ....J P POLLAEF

**NAGW 3544 Arizona State University 1303**  
GRAVITY MODELING FLEXURE AND GEODYNAMICS OF VENUS  
*Period Obligations*  
04/21/1993-03/14/1994 FY93: \$43,500 TOTAL: \$43,500  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R E GRIMM HQ/J T BERGSTRALH 32-Geological Sci

**NCC 2-659 Arizona State University 1311**  
EFFECT OF SOUND ON BOUNDARY-LAYER STABILITY  
*Period Obligations*  
03/26/1990-09/30/1992 FY93: \$0 TOTAL: \$94,106  
*Prin. Invest. NASA Tech. Officer CASE Category*  
W S SARIC ARC/S S DAVIS 41-Aero Engr

**NAGW 3722 Arizona State University 1304**  
A PROGRAM TO CURATE, INVESTIGATE AND DESCRIBE METEORITES  
*Period Obligations*  
08/26/1993-06/30/1994 FY93: \$11,250 TOTAL: \$11,250  
*Prin. Invest. NASA Tech. Officer CASE Category*  
C MOORE HQ/RAHE 32-Geological Sci

**NCC 2-795 Arizona State University 1312**  
AN INTEGRATED OPTIMUM DESIGN APPROACH FOR HIGH SPEED PROPELLATORS INCLUDING ACOUSTIC CONSTRAINTS  
*Period Obligations*  
05/06/1993-03/31/1994 FY93: \$103,457 TOTAL: \$103,457  
*Prin. Invest. NASA Tech. Officer CASE Category*  
A CHATTOPADHYAY ARC/J F MADDEN 41-Aero Engr  
....P D PALBOT

**NAS 5-31344 Arizona State University 1305**  
RESEARCH FOR THE EOS ASTER INSTRUMENT INVESTIGATION  
*Period Obligations*  
06/03/1991-06/02/1992 FY93: \$0 TOTAL: \$49,300  
*Prin. Invest. NASA Tech. Officer CASE Category*  
P CHRISTENSEN GSFC/H BLODGET 31-Atmos Sci

**NASA'S UNIVERSITY PROGRAM**  
**ARIZONA (Continued)**

**NGT 00-050-745 Arizona State University 1313**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 08/22/1991-08/15/1994 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 H L REED HQ/F C OWENS 42-Astro Engr

**NGT 00-070-100 Arizona State University 1314**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
 MINORITY FOCUS PROGRAM  
*Period Obligations*  
 10/17/1988-09/30/1992 FY93: \$0 TOTAL: \$58,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J CRONIN HQ/F C OWENS 12-Chemistry

**NGT 00-070-155 Arizona State University 1315**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
 MINORITY FOCUS PROGRAM  
*Period Obligations*  
 08/31/1989-08/14/1993 FY93: \$0 TOTAL: \$84,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 W GRAF HQ/M MOORE 32-Geological Sci

**NAGW 2732 Navajo Community College 1316**  
 NAVAJO COMMUNITY SUMMER INSTITUTE  
*Period Obligations*  
 09/12/1991-06/07/1994 FY93: \$76,667 TOTAL: \$210,834  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 T GORMAN-KEITH HQ/B WHITE 99-Multi-Discip

**NAG 5-1761 Northern Arizona University 1317**  
 ACCURATE DETERMINATION OF LUNAR PHOTOMETRY  
*Period Obligations*  
 09/13/1991-09/14/1993 FY93: \$0 TOTAL: \$277,900  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R L WILDEY GSFC/B W GUENTHER 11-Astronomy

**NAG 5-2159 Northern Arizona University 1318**  
 TO ESTABLISH THE MOON AS A RADIANCE STANDARD  
*Period Obligations*  
 12/14/1992-12/14/1993 FY93: \$138,400 TOTAL: \$138,400  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R L WILDEY GSFC/B W GUENTHER 39-Env Sci, NEC

**NAG 9-518 Northern Arizona University 1319**  
 UNIV JOINT VENTURE IN SPACE SCIENCE  
*Period Obligations*  
 05/09/1991-04/30/1994 FY93: \$0 TOTAL: \$86,531  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 H O HOOPER JSC/S GOLDSTEIN 11-Astronomy

**NAGW 979 Northern Arizona University 1320**  
 ALBA PATERA 1:500,000 SCALE MAP  
*Period Obligations*  
 10/01/1986-12/31/1992 FY93: \$0 TOTAL: \$197,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 H E HOLT HQ/J M BOYCE 32-Geological Sci  
 ....J R UNDOUWOOD

**NAGW 2303 Northern Arizona University 1321**  
 TROJAN ASTEROIDS AS WITNESSES TO THE ORIGIN OF THE GREAT  
 PLANETS  
*Period Obligations*  
 06/13/1991-10/31/1993 FY93: \$40,000 TOTAL: \$120,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 C S SHOEMAKER HQ/J A NUTH 19-Phys Sci, NEC

**NAGW 2811 Northern Arizona University 1322**  
 SOLAR SYSTEM SPECTROSCOPY  
*Period Obligations*  
 01/03/1992-11/30/1993 FY93: \$115,999 TOTAL: \$192,999  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 B L LUTZ HQ/W L QUAIDE 11-Astronomy

**NGT 00-090-028 Northern Arizona University 1323**  
 NATIVE AMERICAN SCIENCE AND ENGINEERING ADVANCEMENT  
 PROGRAM  
*Period Obligations*  
 11/14/1989-05/31/1994 FY93: \$68,648 TOTAL: \$670,313  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 C N HOLLAND HQ/Y B FREEMAN 49-Engr, NEC  
 J GRAY

**NAG 1-1041 University of Arizona 1324**  
 DEVELOPMENT OF DETERMINISTIC TRANSPORT METHODS FOR  
 LOW ENERGY NEUTRONS FOR SHIELDING IN SPACE  
*Period Obligations*  
 08/04/1989-06/30/1993 FY93: \$0 TOTAL: \$86,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 B D GANAPOL LARC/J W WILSON 13-Physics  
 ....E J CONWAY

**NAG 1-1135 University of Arizona 1325**  
 LEADING EDGE RECEPTIVITY FOR BLUNT NOISE BODIES.  
*Period Obligations*  
 05/02/1990-04/30/1993 FY93: \$5,000 TOTAL: \$108,068  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 E J KERSCHEN LARC/T B GATSKI 41-Aero Engr  
 ....C L STRETT

**NAG 1-1422 University of Arizona 1326**  
 NUMERICAL SIMULATION OF RECEPTIVITY AND TRANSITION IN A  
 BOUNDARY LAYER ON A FLAT PLATE WITH SUCTION  
*Period Obligations*  
 04/29/1992-04/22/1994 FY93: \$35,500 TOTAL: \$71,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 H F FASEL LARC/C L STREETT 41-Aero Engr  
 ....A KUMAR

**NAG 2-143 University of Arizona 1327**  
 PARTICIPATION IN THE PIONEER VENUS MISSION  
*Period Obligations*  
 10/01/1981-09/30/1993 FY93: \$65,001 TOTAL: \$698,105  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D M HUNTEN ARC/L E LASHER 19-Phys Sci, NEC  
 ....R A CRAIG

**NASA'S UNIVERSITY PROGRAM**  
**ARIZONA (Continued)**

**NAG 2-206 University of Arizona 1328**  
 INFRARED SPECTROSCOPY OF PLANETARY ATMOSPHERES FROM  
 THE KUIPER AIRBORNE OBSERVATORY  

Period	Obligations
11/01/1987-10/31/1993	FY93: \$113,000 TOTAL: \$2,169,199
Prin. Invest.	NASA Tech. Officer CASE Category
H P LARSON	ARC/C D LAUGHLIN 11-Astronomy
D S DAVIS	
J H BLACK	

**NAG 2-384 University of Arizona 1329**  
 SKELETAL MUSCLE METABOLISM IN HYPOKINETIC RATS  

Period	Obligations
11/01/1987-06/30/1993	FY93: \$0 TOTAL: \$508,617
Prin. Invest.	NASA Tech. Officer CASE Category
M E TISCHLER	ARC/C M WINGET 51-Biological Sci
....R W BALLARD	

**NAG 2-392 University of Arizona 1330**  
 MECHANISTIC STUDIES ON REDUCED EXERCISE PERFORMANCE AND  
 CARDIAC DECONDITIONING WITH SIMULATED ZERO GRA  

Period	Obligations
04/15/1986-03/31/1993	FY93: \$77,600 TOTAL: \$708,209
Prin. Invest.	NASA Tech. Officer CASE Category
C M TIPTON	ARC/A R HARGERS 59-Life Sci, NEC
J M OVERTON	

**NAG 2-620 University of Arizona 1331**  
 DESIGN AND PERFORMANCE MEASUREMENT SIMULATION STUDIES  
 FOR AN ER-2 SUNPHOTOMETER  

Period	Obligations
12/13/1989-06/30/1993	FY93: \$0 TOTAL: \$103,868
Prin. Invest.	NASA Tech. Officer CASE Category
J A REAGAN	ARC/S S WEGENER 19-Phys Sci, NEC

**NAG 2-641 University of Arizona 1332**  
 SURFACE CHARACTERISTICS OF THE GALILEAN SATELLITES AS  
 DEDUCED FROM OPTICAL POLARIZATION MEASUREMENTS  

Period	Obligations
05/31/1990-12/31/1992	FY93: \$0 TOTAL: \$26,885
Prin. Invest.	NASA Tech. Officer CASE Category
L R DOOSE	ARC/L E LASHER 11-Astronomy
....R O FIMMEL	

**NAG 2-661 University of Arizona 1333**  
 A STUDY OF SOFTWARE FOR SIRT F INSTRUMENT CONTROL  

Period	Obligations
08/14/1990-06/30/1992	FY93: \$0 TOTAL: \$49,967
Prin. Invest.	NASA Tech. Officer CASE Category
E T YOUNG	ARC/D G KOCH 11-Astronomy
L SCHOOLEY	

**NAG 2-679 University of Arizona 1334**  
 VENUS LOWER THERMOSPHERE STUDIES  

Period	Obligations
10/26/1990-09/30/1992	FY93: \$0 TOTAL: \$75,269
Prin. Invest.	NASA Tech. Officer CASE Category
S W BOUGHER	ARC/L E LASHER 11-Astronomy
....R O FIMMEL	

**NAG 2-782 University of Arizona 1335**  
 SKELETAL MUSCLE GLUCOSE TRANSPORT DURING SIMULATED  
 WEIGHTLESSNESS  

Period	Obligations
04/27/1992-02/28/1994	FY93: \$0 TOTAL: \$40,000
Prin. Invest.	NASA Tech. Officer CASE Category
E J HENRIKSEN	ARC/E M HOLTON 51-Biological Sci

**NAG 2-847 University of Arizona 1336**  
 THE SYMPOSIUM ON AERODYNAMICS AND AEROACOUSTICS  

Period	Obligations
06/16/1993-07/14/1993	FY93: \$5,000 TOTAL: \$5,000
Prin. Invest.	NASA Tech. Officer CASE Category
K Y FUNG	ARC/S DAVIS 41-Aero Engr

**NAG 3-357 University of Arizona 1337**  
 NOISE GENERATED BY AIRFOILS ENCOUNTERING HIGH  
 FREQUENCY CONVEXED DISTURBANCES EFFECTS OF AIRFOILS  
 S  

Period	Obligations
11/02/1982-12/28/1992	FY93: \$0 TOTAL: \$546,188
Prin. Invest.	NASA Tech. Officer CASE Category
E J KERSCHEN	LERC/J F GROENEWEG 41-Aero Engr

**NAG 3-781 University of Arizona 1338**  
 NONLINEAR EVOLUTION OF COHERENT STRUCTURES IN  
 SUPersonic SHEAR LAYERS  

Period	Obligations
02/05/1987-03/03/1994	FY93: \$0 TOTAL: \$98,334
Prin. Invest.	NASA Tech. Officer CASE Category
T BALSA	LERC/J H MILES 41-Aero Engr
....E RICE	

**NAG 3-1260 University of Arizona 1339**  
 THERMOPHYSICAL PROPERTY VALUES OF LUNAR SOIL  

Period	Obligations
03/25/1991-01/05/1993	FY93: \$0 TOTAL: \$198,231
Prin. Invest.	NASA Tech. Officer CASE Category
K RAMOHALLI	LERC/R SKARDA 46-Mech Engr

**NAG 3-1268 University of Arizona 1340**  
 FLUID MECHANICS OF DIRECTIONAL SOLIDIFICATION AT REDUCED  
 GRAVITY  

Period	Obligations
04/09/1991-03/31/1994	FY93: \$75,000 TOTAL: \$225,000
Prin. Invest.	NASA Tech. Officer CASE Category
C F CHEN	LERC/T K GLASGOW 47-Materials Engr

**NAG 3-1386 University of Arizona 1341**  
 MARANGONI AND DOUBLE-DIFFUSIVE CONVECTION IN A FLUID  
 LAYER UNDER MICROGRAVITY  

Period	Obligations
11/30/1992-11/30/1993	FY93: \$96,367 TOTAL: \$96,367
Prin. Invest.	NASA Tech. Officer CASE Category
C F CHEN	LERC/J A SALZMAN 19-Phys Sci, NEC

**NASA'S UNIVERSITY PROGRAM**  
**ARIZONA (Continued)**

**NAG 3-1436 University of Arizona 1342**  
 A PROPOSAL FOR THE SYMPOSIUM ON AERODYNAMICS AND AER  
 OACOUSTICS  
*Period Obligations*  
 01/19/1993-07/14/1993 FY93: \$3,000 TOTAL: \$3,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 K FUNG LERC/M E GOLDSTEIN 41-Aero Engr

**NAG 5-790 University of Arizona 1349**  
 STUDIES IN SUPPORT OF REMOTE SENSING GAMMA-RAY  
 SPECTROSCOPY  
*Period Obligations*  
 07/01/1986-01/31/1993 FY93: \$0 TOTAL: \$85,351  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 W V BOYNTON GSFC/J I TROMBKA 11-Astronomy

**NAG 3-1442 University of Arizona 1343**  
 A THEORETICAL STUDY OF LEADING-EDGE DEVICES FOR AC TIVE  
 AND PASSIVE CONTROL OF WAKE-AIRFOIL INTERACT N  
*Period Obligations*  
 01/19/1993-01/07/1994 FY93: \$61,364 TOTAL: \$61,364  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 E KERSCHEN LERC/D HUFF 41-Aero Engr

**NAG 5-1235 University of Arizona 1350**  
 INFRARED PROPERTIES STRONG RADIO SOURCES  
*Period Obligations*  
 07/27/1989-10/31/1993 FY93: \$0 TOTAL: \$103,549  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 C IMPEY GSFC/D WEST 11-Astronomy

**NAG 3-1446 University of Arizona 1344**  
 COMPUTER SIM;ULATIONS OF DENDRITIC ALLOYS SOLIDIFI ED IN  
 TERRESTRIAL AND LOW-GRAVITY ENVIRONMENTS  
*Period Obligations*  
 02/08/1993-01/31/1994 FY93: \$86,473 TOTAL: \$86,473  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D R POIRIER LERC/A CHAIT 47-Materials Engr  
 ....E NELSON

**NAG 5-1252 University of Arizona 1351**  
 FLUX LIMITED SAMPLE QUASARS DICON IRAS JOINT SOURCE  
*Period Obligations*  
 08/03/1989-08/31/1993 FY93: \$0 TOTAL: \$196,999  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 F J LOW GSFC/D WEST 11-Astronomy

**NAG 3-1499 University of Arizona 1345**  
 ADVANCED CONCENTRATOR ARRAY DEVELOPMENT  
*Period Obligations*  
 06/15/1993-02/06/1994 FY93: \$50,000 TOTAL: \$50,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 P A FRANKEN LERC/D J FLOOD 42-Astro Engr  
 V M ANDREEV ....H B CURTIS

**NAG 5-1346 University of Arizona 1352**  
 RESEARCH STUDIES ADVANCED OPTICAL MODULE/HEAD DESIGNS  
 FOR  
*Period Obligations*  
 04/03/1990-06/30/1993 FY93: \$0 TOTAL: \$105,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J W BURKE GSFC/G L UNGER 45-Elec Engr  
 ....B D SEARY

**NAG 3-1524 University of Arizona 1346**  
 ASYMPTOTIC THEORY FOR DISTRIBUTED RECEPTIVITY  
*Period Obligations*  
 09/14/1993-09/16/1994 FY93: \$60,000 TOTAL: \$60,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 E J KERSCHEN LERC/L S HULTGREEN 41-Aero Engr

**NAG 5-1370 University of Arizona 1353**  
 STUDY OF EXTENDED STRUCTURES IN ZODIACAL THERMAL  
*Period Obligations*  
 04/12/1990-06/30/1993 FY93: \$0 TOTAL: \$230,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M V SYKES GSFC/D WEST 11-Astronomy

**NAG 5-434 University of Arizona 1347**  
 IUE OBSERVATIONS OF SATURN'S RINGS; WHITE DWARF LIGMAN  
 ALPHA PROFILES  
*Period Obligations*  
 07/01/1984-08/31/1993 FY93: \$0 TOTAL: \$226,573  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J B HOLBERT GSFC/Y KONDO 11-Astronomy  
 E M SION

**NAG 5-1496 University of Arizona 1354**  
 INVESTIGATION OF BACKSCATTERED ALBEDOS AS MEASURED BY  
 THE TOMS INSTRUMENT  
*Period Obligations*  
 03/13/1991-04/30/1994 FY93: \$127,900 TOTAL: \$357,900  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 B M HERMAN GSFC/R D MCPETERS 31-Atmos Sci  
 ....R S STOLARSKI

**NAG 5-637 University of Arizona 1348**  
 EUV SPECTRAL IMAGER  
*Period Obligations*  
 07/11/1986-03/31/1994 FY93: \$120,000 TOTAL: \$601,282  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A L BROADFOOT GSFC/L J EARLY 13-Physics  
 ....R H PLESS

**NAG 5-1572 University of Arizona 1355**  
 STUDY THERMAL CONTROL SYSTEMS FOR LOW TEMPERATURE  
 HEAT REJECTION  
*Period Obligations*  
 05/20/1991-04/30/1993 FY93: \$0 TOTAL: \$153,008  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 K R SRIDHAR GSFC/T D SWANSON 41-Aero Engr

**NASA'S UNIVERSITY PROGRAM**  
**ARIZONA (Continued)**

**NAG 5-1575 University of Arizona 1356**  
 ANALYSIS OF ROSAT OBSERVATIONS OF HOT DO AND HOT D A  
 WHITE DWARFS;SELECTED SAMPLE OF HOTTEST H-RICH.  
*Period Obligations*  
 05/02/1991-09/14/1992 FY93: \$0 TOTAL: \$40,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J B HOLBERG GSFC/R PETRE 11-Astronomy

**NAG 5-1642 University of Arizona 1357**  
 INTERACTION OF TERRESTRIAL AND ATMOSPHERIC HYDROLO  
 GICAL CYCLES IN THE CONTEXT OF THE NORTH AMERICAN  
*Period Obligations*  
 08/01/1991-07/31/1993 FY93: \$0 TOTAL: \$232,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R E DICKINSON GSFC/W LAU 31-Atmos Sci

**NAG 5-1680 University of Arizona 1358**  
 PSPC OBSREVATIONS OF HIGH REDSHIFT QSO'S  
*Period Obligations*  
 06/28/1991-06/30/1992 FY93: \$12 TOTAL: \$10,988  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J BECHTOLD GSFC/R PETRE 11-Astronomy

**NAG 5-1704 University of Arizona 1359**  
 ULTRA-DEEP IMAGES OF THE COMA AND PERSEUS CLUSTERS  
*Period Obligations*  
 07/15/1991-04/14/1993 FY93: \$0 TOTAL: \$30,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S D WHITE GSFC/R PETRE 11-Astronomy

**NAG 5-1711 University of Arizona 1360**  
 PSPC OBSERVATIONS OF INFRARED COLOR-SELECTED QSOS  
*Period Obligations*  
 08/01/1991-07/31/1993 FY93: \$0 TOTAL: \$26,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R M CUTRI GSFC/R PETRE 11-Astronomy

**NAG 5-1712 University of Arizona 1361**  
 ASSESSMENT OF A PROTOTYPE SUNPHOTOMETER FOR NETWORK  
 K APPLICATIONS-PHASE I  
*Period Obligations*  
 08/01/1991-09/14/1994 FY93: \$5,000 TOTAL: \$35,001  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J A REAGAN GSFC/B N HOLBEN 22-Computer Science

**NAG 5-1866 University of Arizona 1362**  
 ROSAT OBSERVATIONS OF AN UNBIASED SAMPLE OF HOT DA  
 WHITE DWARFS  
*Period Obligations*  
 01/22/1992-08/14/1993 FY93: \$34,266 TOTAL: \$69,810  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J W LIEBERT GSFC/R PETRE 11-Astronomy

**NAG 5-1867 University of Arizona 1363**  
 HIGH REDSHIFT QSOS AND THE X-RAY BACKGROUND  
*Period Obligations*  
 01/22/1992-08/31/1993 FY93: \$0 TOTAL: \$25,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 C D IMPEY GSFC/R PETRE 11-Astronomy

**NAG 5-2012 University of Arizona 1364**  
 ANALYSIS OF LEAP BALLOON FLIGHT DATA  
*Period Obligations*  
 07/01/1992-08/30/1992 FY93: \$9 TOTAL: \$4,766  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 T BOWEN GSFC/R E STREITMATTER 11-Astronomy  
 ....L M BARBIER

**NAG 5-2080 University of Arizona 1365**  
 PSPC OBSERVATIONS OF HIGH REDSHIFT QSOS  
*Period Obligations*  
 08/25/1992-08/31/1994 FY93: \$15,000 TOTAL: \$35,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J BECHTOLD GSFC/R PETRE 11-Astronomy

**NAG 5-2131 University of Arizona 1366**  
 DA WHITE DWARFS WITH PECULIAR LINE PROFILES  
*Period Obligations*  
 11/09/1992-11/14/1993 FY93: \$6,000 TOTAL: \$6,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J W LIEBERT GSFC/D WEST 11-Astronomy

**NAG 5-2198 University of Arizona 1367**  
 CONTENT - BASED QUERY AND BROWSE OF EARTH SCIENCE  
 IMAGERY DATABASES USING HIGH PERF. COMPUTERS AND NET  
*Period Obligations*  
 02/25/1993-11/30/1993 FY93: \$29,697 TOTAL: \$29,697  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R A SCHOWENGERDT GSFC/J R FISCHER 22-Computer Science  
 L L PETERSON  
 C J TURNER

**NAG 5-2251 University of Arizona 1368**  
 THE PHYSICAL FOUNDATIONS OF PARTICLE ACCELERATION BY  
 COLLISIONLESS SHOCKS IN SPACE  
*Period Obligations*  
 04/27/1993-04/30/1994 FY93: \$34,500 TOTAL: \$34,500  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J R JOKIPII GSFC/T J BIRMINGHAM 13-Physics  
 ....J D BOHLIN

**NAG 5-2268 University of Arizona 1369**  
 THE EUV OPACITY AND H CONTENT OF HOT DA WHITE DWARFS  
*Period Obligations*  
 05/07/1993-05/31/1994 FY93: \$50,921 TOTAL: \$50,921  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R W TWEEDY GSFC/R OLIVERSEN 11-Astronomy

**NAG 5-2269 University of Arizona 1370**  
 TEMPERATURE AND COMPOSITION OF A UNIQUE HOT DO WHITE  
 DWARF AND TEMP. AND COMP. OF WHITE DWARFS . . .  
*Period Obligations*  
 05/07/1993-05/31/1994 FY93: \$49,691 TOTAL: \$49,691  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J B HOLBERG GSFC/R OLIVERSEN 11-Astronomy



**NASA'S UNIVERSITY PROGRAM**  
**ARIZONA (Continued)**

**NAG 5-2310 University of Arizona 1371**  
 INCORPORATION OF BOREAL FOREST ECOSYSTEM DESCRIPTION  
 INTO CLIMATE MODELING FRAMEWORK  
*Period Obligations*  
 07/12/1993-07/14/1994 FY93: \$10,000 TOTAL: \$10,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R E DICKINSON GSFC/F G HALL 39-Env Sci, NEC  
 ....P SELLERS

**NAG 5-2311 University of Arizona 1372**  
 FOLLOW-UP OBSERVATIONS OF DIFFUSE EMISSION IN OPHI  
 UCHUS  
*Period Obligations*  
 07/07/1993-07/14/1994 FY93: \$30,000 TOTAL: \$30,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J B HOLBERG GSFC/R OLIVERSEN 11-Astronomy

**NAG 8-766 University of Arizona 1373**  
 MOUNTAIN-BASED DATA MEASUREMENTS BY COHERENT LINEAR  
*Period Obligations*  
 02/14/1989-01/12/1993 FY93: \$111 TOTAL: \$149,954  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R M SCHOTLAND MSFC/D E FITZJARRALD 31-Atmos Sci

**NAG 8-883 University of Arizona 1374**  
 SOLID ROCKET COMBUSTION SIMULATION  
*Period Obligations*  
 07/24/1991-07/23/1993 FY93: \$0 TOTAL: \$104,871  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 K RAMABALLI MSFC/M STUCKER 49-Engr, NEC  
 ....B GOLDBERG

**NAG 8-884 University of Arizona 1375**  
 DEFINITION OF THE LUNAR TRANSIT TELESCOPE  
*Period Obligations*  
 06/17/1991-06/16/1992 FY93: \$2 TOTAL: \$10,520  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J T MCGRAW MSFC/M E NEIN 11-Astronomy

**NAG 8-889 University of Arizona 1376**  
 AN ANALYSIS OF THE ROLE OF TOPOGRAPHY CYCLOGENESIS OF  
 THE EASTERN PACIFIC  
*Period Obligations*  
 08/14/1991-08/18/1993 FY93: \$0 TOTAL: \$48,730  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J A ZEHNDER MSFC/J W KAUFMAN 31-Atmos Sci

**NAG 8-906 University of Arizona 1377**  
 THE LUNAR TRANSIT TELESCOPE: AN INITIAL INVESTIGATION  
*Period Obligations*  
 03/13/1992-06/30/1992 FY93: \$3 TOTAL: \$10,968  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J T MCGRAW MSFC/M E NEIN 42-Astro Engr

**NAG 8-909 University of Arizona 1378**  
 RESEARCH  
*Period Obligations*  
 04/14/1992-12/31/1993 FY93: \$0 TOTAL: \$64,998  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J C BAYGENTS MSFC/R S SNYDER 19-Phys Sci, NEC

**NAG 8-944 University of Arizona 1379**  
 NO-EQUILIBRIUM PHASE TRANSFORMATIONS  
*Period Obligations*  
 12/16/1992-11/30/1993 FY93: \$145,002 TOTAL: \$145,002  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 K A MATTHEWS MSFC/M P VOLZ 47-Materials Engr

**NAG 8-948 University of Arizona 1380**  
 STUDIES ON THE RESPONSE OF EMULSIONS TO EXTERNALLY  
 IMPOSED ELECTRIC AND VELOCITY FIELDS  
*Period Obligations*  
 01/25/1993-01/21/1994 FY93: \$85,000 TOTAL: \$85,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J C BAYGENTS MSFC/P H RHODES 47-Materials Engr  
 H A STONE

**NAG 9-37 University of Arizona 1381**  
 TRACE ELEMENTS FROM CHONDRITES  
*Period Obligations*  
 03/01/1983-10/01/1993 FY93: \$0 TOTAL: \$1,483,838  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 W V BOYNTON JSC/I D BROWNE 12-Chemistry

**NAG 9-39 University of Arizona 1382**  
 METEORITIC BASALTS  
*Period Obligations*  
 02/01/1983-03/01/1994 FY93: \$35,000 TOTAL: \$1,314,888  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M J DRAKE JSC/I D BROWNE 12-Chemistry

**NAG 9-233 University of Arizona 1383**  
 COSMOGENIC 14C IN METEORITES  
*Period Obligations*  
 06/01/1987-06/01/1994 FY93: \$0 TOTAL: \$193,147  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A J JULL JSC/I D BROWNE 32-Geological Sci

**NAG 9-240 University of Arizona 1384**  
 NOBLE GAS STUDIES OF EARLY SOLAR SYSTEM  
*Period Obligations*  
 06/15/1987-06/01/1994 FY93: \$0 TOTAL: \$188,026  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 T D SWINDLE JSC/I D BROWNE 32-Geological Sci

**NAG 9-442 University of Arizona 1385**  
 ORIENTATION OF CELLS BY GRAVITY  
*Period Obligations*  
 06/01/1990-12/01/1993 FY93: \$0 TOTAL: \$119,893  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S O KESSLER JSC/C F SAMS 51-Biological Sci  
 ....N M CINTRON

**NAG 9-460 University of Arizona 1386**  
 CATION ORDERING IN ORTHOPYROXENES AND THE COOLING  
 RATES OF METEORITES  
*Period Obligations*  
 07/16/1990-05/01/1994 FY93: \$0 TOTAL: \$98,250  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J GANGULY JSC/I D BROWNE 19-Phys Sci, NEC

**NASA'S UNIVERSITY PROGRAM**  
**ARIZONA (Continued)**

**NAG 9-494 University of Arizona 1387**  
 DETERMINATION OF ALBEDOS AND DIAMETERS OF LOW EARTH ORBIT DEBRIS  
*Period Obligations*  
 02/14/1991-05/01/1993 FY93: \$15,000 TOTAL: \$109,870  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 L A LEBOWSKY JSC/F VILAS 19-Phys Sci, NEC

**NAG 9-537 University of Arizona 1388**  
 ENHANCED HYBRIDOMA PRODUCTION USING ELECTROFUSION UNDER MICROGRAVITY  
*Period Obligations*  
 07/01/1991-07/01/1993 FY93: \$0 TOTAL: \$221,625  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D W SAMMONS JSC/S R GONDA 51-Biological Sci

**NAGW 247 University of Arizona 1389**  
 COMETARY SPECTROSCOPY  
*Period Obligations*  
 11/01/1981-10/31/1993 FY93: \$53,000 TOTAL: \$501,721  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S M LARSON HQ/H C BRINTON 11-Astronomy  
 ....J H RAHE

**NAGW 285 University of Arizona 1390**  
 HYDRO GEMORPHIC STUDIES OF MARS  
*Period Obligations*  
 01/15/1982-09/30/1993 FY93: \$42,000 TOTAL: \$442,269  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 V R BAKER HQ/J R UNDERWOOD 32-Geological Sci  
 ....J M BOYCE

**NAGW 340 University of Arizona 1391**  
 RESEARCH ON THE ORIGIN AND EVALUATION OF PLANETARY ATMOSPHERES  
*Period Obligations*  
 07/01/1982-04/30/1992 FY93: \$21 TOTAL: \$889,005  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J S LEWIS HQ/J T BERGSTRALH 31-Atmos Sci  
 ....W L QUAIDE

**NAGW 428 University of Arizona 1392**  
 CRATER MODIFICATION BY GRAVITY  
*Period Obligations*  
 03/15/1983-09/30/1993 FY93: \$144,200 TOTAL: \$1,223,315  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 H J MELOSH HQ/J R UNDERWOOD 32-Geological Sci  
 ....D SCOTT

**NAGW 520 University of Arizona 1393**  
 DETECTOR EVALUATION FOR A DEEP OPTICAL INFRARED SURVEY  
*Period Obligations*  
 02/01/1984-10/31/1992 FY93: \$0 TOTAL: \$1,750,873  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M RIEKE HQ/R V STACHNIK 11-Astronomy  
 ....E J WEILER

**NAGW 596 University of Arizona 1394**  
 STUDIES OF PLANETARY EXTENDED ATMOSPHERE  
*Period Obligations*  
 02/01/1984-12/31/1991 FY93: \$0 TOTAL: \$511,242  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D M HUNTER HQ/H C BRINTON 11-Astronomy  
 ....J H RAHE

**NAGW 716 University of Arizona 1395**  
 PHYSICAL STUDIES OF FAST-MOVING ASTEROIDS  
*Period Obligations*  
 02/01/1985-05/31/1992 FY93: \$0 TOTAL: \$392,363  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 W Z WISNIEWSKI HQ/H C BRINTON 31-Atmos Sci  
 ....J H RAHE

**NAGW 887 University of Arizona 1396**  
 DEVELOPMENT OF CCD SCANNING FOR ASTEROIDS/COMETS  
*Period Obligations*  
 12/01/1985-11/30/1993 FY93: \$67,200 TOTAL: \$509,012  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 T GEHRELS HQ/H C BRINTON 11-Astronomy  
 ....J H RAHE

**NAGW 896 University of Arizona 1397**  
 RADIOMETRIC CALIBRATION OF THE EOS  
*Period Obligations*  
 05/15/1986-05/14/1993 FY93: \$0 TOTAL: \$1,695,074  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 P SLATER HQ/A J TUYAHOV 99-Multi-Discip  
 ....J E ESTES

**NAGW 909 University of Arizona 1398**  
 OBS AND INT OF RADIATIVE AND PHOTOCHEMICAL PROCESSES  
*Period Obligations*  
 07/01/1986-02/28/1994 FY93: \$81,281 TOTAL: \$587,649  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 L L HOOD HQ/R D MCPETERS 31-Atmos Sci  
 ....M J PRATHER

**NAGW 960 University of Arizona 1399**  
 OBSERVATIONAL STUDIES OF SATURN'S RINGS  
*Period Obligations*  
 07/15/1986-10/31/1991 FY93: \$67 TOTAL: \$155,687  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 C C PORCO HQ/J R UNDERWOOD 32-Geological Sci  
 ....J M BOYCE

**NAGW 1029 University of Arizona 1400**  
 COLLISIONAL AND DYNAMICAL PROCESSES  
*Period Obligations*  
 12/01/1986-09/30/1993 FY93: \$124,748 TOTAL: \$624,551  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R J GREENBERG HQ/J R UNDERWOOD 32-Geological Sci  
 ....J M BOYCE

**NAGW 1039 University of Arizona 1401**  
 THEORETICAL STUDIES OF VOLATILE PROCESSES  
*Period Obligations*  
 02/15/1987-10/31/1993 FY93: \$61,989 TOTAL: \$294,615  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J I LUNINE HQ/J T BERGSTRALH 31-Atmos Sci  
 ....W L QUAIDE

**NAGW 1059 University of Arizona 1402**  
 COMPOSITION AND DISTRIBUTION OF MARS SURFACE MATERIALS  
*Period Obligations*  
 01/01/1987-09/30/1993 FY93: \$45,000 TOTAL: \$519,990  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R B SINGER HQ/J R UNDERWOOD 32-Geological Sci  
 ....J M BOYCE

**NASA'S UNIVERSITY PROGRAM**  
**ARIZONA (Continued)**

**NAGW 1146 University of Arizona 1403**  
 INFRARED REFLECTANCE STUDY OF CARBONACEOUS MATERIALS  
*Period Obligations*  
 08/01/1987-09/30/1993 FY93: \$32,800 TOTAL: \$180,836  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 L A LEBOWSKY HQ/T A MAXWELL 32-Geological Sci  
 ....J M BOYCE

**NAGW 1182 University of Arizona 1404**  
 MODEL ANALYSIS OF ATMOSPHERE OF URANUS  
*Period Obligations*  
 09/28/1987-09/30/1991 FY93: \$1,086 TOTAL: \$239,232  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D E SHEMANSKY HQ/W L QUAIDE 19-Phys Sci, NEC  
 ....H C BRINTON

**NAGW 1184 University of Arizona 1405**  
 MULTIWAVELENGTH OBSERVATIONS OF THE PARTICLE PROPERTIES  
*Period Obligations*  
 09/15/1987-09/30/1991 FY93: \$202 TOTAL: \$104,604  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J B HOLBERG HQ/W L QUAIDE 11-Astronomy  
 ....J M BOYCE

**NAGW 1283 University of Arizona 1406**  
 SEARCH FOR EXTRASOLAR PLANETS  
*Period Obligations*  
 04/12/1988-11/30/1993 FY93: \$71,000 TOTAL: \$528,018  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R S MCMILLAN HQ/H C BRINTON 11-Astronomy  
 ....J H RAHE

**NAGW 1285 University of Arizona 1407**  
 SPACE INFRARED DETECTOR DEVELOPMENT  
*Period Obligations*  
 05/11/1988-12/31/1993 FY93: \$145,136 TOTAL: \$833,198  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 E YOUNG HQ/F C GILLET 11-Astronomy

**NAGW 1332 University of Arizona 1408**  
 CENTER FOR UTIL. OF LOCAL PLANETARY RESOURCES  
*Period Obligations*  
 07/13/1988-12/31/1993 FY93: \$1,530,000 TOTAL: \$8,406,940  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J S LEWIS HQ/B F QUIGLEY 49-Engr, NEC  
 K N RAMOHALI

**NAGW 1419 University of Arizona 1409**  
 IMAGING SPECTROMETER FOR ENERGETIC NEUTRAL ATOMS  
*Period Obligations*  
 08/11/1988-12/14/1992 FY93: \$0 TOTAL: \$187,500  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 K C HSIEH HQ/P R MAHAFFY 32-Geological Sci

**NAGW 1498 University of Arizona 1410**  
 AN INVESTIGATION OF THE INTERACTION BETWEEN THE NEUTRAL  
*Period Obligations*  
 11/17/1988-10/31/1993 FY93: \$36,458 TOTAL: \$185,344  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 F HERBERT HQ/J T BERGSTRALH 11-Astronomy

**NAGW 1549 University of Arizona 1411**  
 PLANETARY SPECTROSCOPY  
*Period Obligations*  
 12/12/1988-11/30/1993 FY93: \$110,000 TOTAL: \$569,153  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 U FINK HQ/J H RAHE 11-Astronomy

**NAGW 1555 University of Arizona 1412**  
 INTERIORS OF THE GIANT PLANETS  
*Period Obligations*  
 12/12/1988-12/31/1993 FY93: \$66,135 TOTAL: \$362,756  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 W B HUBBARD HQ/J H RAHE 11-Astronomy

**NAGW 1658 University of Arizona 1413**  
 THEORETICAL AND OBS. STUDIES OF INTER. OF OUTER PLANET MAG.  
*Period Obligations*  
 02/09/1989-11/30/1993 FY93: \$61,500 TOTAL: \$292,140  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 L L HOOD HQ/M M MELLOTT 19-Phys Sci, NEC  
 ....T W PERRY

**NAGW 1676 University of Arizona 1414**  
 IMAGES FOR PLANETARY PLASMAS  
*Period Obligations*  
 02/10/1989-02/28/1993 FY93: \$0 TOTAL: \$520,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 B R SANDEL HQ/J K ALEXANDER 19-Phys Sci, NEC  
 ....D A HOLLAND

**NAGW 1705 University of Arizona 1415**  
 EFFECTS OF HYPOGRAVITY ON SYNOP  
*Period Obligations*  
 03/09/1989-10/31/1992 FY93: \$0 TOTAL: \$114,405  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R P GRUENER HQ/T HALSTEAD 59-Life Sci, NEC

**NAGW 1720 University of Arizona 1416**  
 DYNAMICAL EVOLUTION IN THE SOLAR SYSTEM  
*Period Obligations*  
 04/20/1989-12/15/1991 FY93: \$16,038 TOTAL: \$66,962  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 W A TITTEMORE HQ/J R UNDERWOOD 32-Geological Sci

**NAGW 1876 University of Arizona 1417**  
 STELLAR OCCULTATIONS BY PLANETARY RINGS OCCULTATIO N BY SATURN  
*Period Obligations*  
 05/08/1990-12/14/1993 FY93: \$42,000 TOTAL: \$160,093  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 C C PORCO HQ/J RAHE 11-Astronomy

**NAGW 1881 University of Arizona 1418**  
 LUNAR PALEOMAGNETISM AND MAGNETIC EFFECTS OF IMPACT PROC.  
*Period Obligations*  
 11/17/1989-10/31/1993 FY93: \$30,999 TOTAL: \$123,948  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 L L HOOD HQ/T A MAXWELL 32-Geological Sci

# NASA'S UNIVERSITY PROGRAM

## ARIZONA (Continued)

**NAGW 1903**                      **University of Arizona**                      **1419**  
 MEASUREMENTS OF THE OPTICAL PROPERTIES OF  
 LOW-TEMPERATURE ICE CRYSTALS  
*Period*                                      *Obligations*  
 12/06/1989-08/31/1992      FY93: \$0                      TOTAL: \$155,000  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 M G TOMASKO                      HQ/J T BERGSTALH                      11-Astronomy

**NAGW 2017**                      **University of Arizona**                      **1426**  
 NON-LTE MODELS OF THE MESOSPHERES OF THE OUTER PL  
 NETS AND THEIR SATELLITES  
*Period*                                      *Obligations*  
 04/06/1990-11/30/1993      FY93: \$84,230                      TOTAL: \$313,071  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 R YELLE                      HQ/J BERGSTALH                      11-Astronomy

**NAGW 1914**                      **University of Arizona**                      **1420**  
 DUST PLASMA INTERACTION  
*Period*                                      *Obligations*  
 12/14/1989-02/28/1993      FY93: \$0                      TOTAL: \$230,130  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 E LEVY                      HQ/E WHIPPLE                      13-Physics  
    ....T W PERRY

**NAGW 2021**                      **University of Arizona**                      **1427**  
 PLANETARY CRATERING INVESTIGATIONS AND ICY SATELLI TE  
 TECTONICS  
*Period*                                      *Obligations*  
 03/05/1990-09/30/1993      FY93: \$83,034                      TOTAL: \$339,925  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 R G STROM                      HQ/J M BOYCE                      32-Geological Sci

**NAGW 1927**                      **University of Arizona**                      **1421**  
 A PROPOSAL TO CONTINUE DEVELOPMENT AND APPLICATION S  
 OF FAR-INFRARED DETECTION TECHNIQUES  
*Period*                                      *Obligations*  
 07/23/1990-02/28/1994      FY93: \$56,873                      TOTAL: \$221,701  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 F J LOW                      HQ/G S LEVY                      11-Astronomy

**NAGW 2145**                      **University of Arizona**                      **1428**  
 GAMMA RAYS AND X-RAY FROM SUPERNOVAE  
*Period*                                      *Obligations*  
 06/06/1990-12/31/1993      FY93: \$88,155                      TOTAL: \$294,626  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 A S BURROWS                      HQ/G S KUTTER                      11-Astronomy  
    ....G R RIEGLER

**NAGW 1931**                      **University of Arizona**                      **1422**  
 THEORY OF CHARGED-PARTICLE TRANSPORT AND ASTROPHYS  
 ICAL PLASMAS  
*Period*                                      *Obligations*  
 02/23/1990-10/31/1994      FY93: \$127,595                      TOTAL: \$438,798  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 J R JOKIPPI                      HQ/J C LING                      13-Physics  
    ....W V JONES

**NAGW 2176**                      **University of Arizona**                      **1429**  
 GENERATION AND BEHAVIOR OF SOLAR-SYSTEM MAGNETIC F  
 IELDS  
*Period*                                      *Obligations*  
 07/27/1990-09/30/1993      FY93: \$93,700                      TOTAL: \$355,423  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 E H LEVY                      HQ/T A MAXWELL                      32-Geological Sci

**NAGW 1949**                      **University of Arizona**                      **1423**  
 INVERTIBLE REFLECTANCE MODELING FOR SEMI-ARID ENVI  
 RONMENTS  
*Period*                                      *Obligations*  
 05/05/1990-12/31/1992      FY93: \$0                      TOTAL: \$126,000  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 A R HUETE                      HQ/G ASRAR                      39-Env Sci, NEC  
    ....T J PIEPER

**NAGW 2206**                      **University of Arizona**                      **1430**  
 DEVELOPMENT OF A HIGH RESOLUTION CRYOGENIC INFRARE D  
 SPECTROMETER FOR PLANETARY AIRBORNE ASTRONOMY  
*Period*                                      *Obligations*  
 11/14/1990-04/30/1994      FY93: \$100,000                      TOTAL: \$456,312  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 H P LARSON                      HQ/W L QUAIDE                      19-Phys Sci, NEC

**NAGW 1974**                      **University of Arizona**                      **1424**  
 A STUDY OF THE EVOLUTION OF DUST JETS IN COMET HAL LEY  
*Period*                                      *Obligations*  
 02/06/1990-11/30/1993      FY93: \$32,020                      TOTAL: \$168,962  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 S M LARSON                      HQ/J BERGSTALH                      11-Astronomy

**NAGW 2233**                      **University of Arizona**                      **1431**  
 NAGW-2233/UNIV ARIZONA/WEATHERING PRODUCTS AND  
 PROCESSES ON MARTIAN SURFACE  
*Period*                                      *Obligations*  
 05/23/1991-10/31/1993      FY93: \$37,999                      TOTAL: \$135,275  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 R B SINGER                      HQ/T A MAXWELL                      32-Geological Sci

**NAGW 1975**                      **University of Arizona**                      **1425**  
 INFRARED OBSERVATIONS OF SOLAR SYSTEM OBJECTS  
*Period*                                      *Obligations*  
 04/10/1990-12/31/1993      FY93: \$44,012                      TOTAL: \$178,963  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 L A LEBOSKY                      HQ/J BERGSTALH                      11-Astronomy

**NAGW 2240**                      **University of Arizona**                      **1432**  
 IMPACT EROSION AND THE EVOLUTION OF THE MARTIAN AT  
 MOSPHERE  
*Period*                                      *Obligations*  
 03/06/1991-10/31/1993      FY93: \$22,256                      TOTAL: \$65,661  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 A M VICKERY                      HQ/T A MAXWELL                      32-Geological Sci

**NASA'S UNIVERSITY PROGRAM**  
**ARIZONA (Continued)**

**NAGW 2249 University of Arizona 1433**  
 NAGW-2249/UNIV ARIZONA/THE MEASUREMENT OF ISOTOPIC  
 ABUNDANCE AND MOLECULAR COMPOSITION OF INDIVIDUAL  
*Period Obligations*  
 06/13/1991-04/30/1994 FY93: \$10,000 TOTAL: \$20,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 C Y FAN HQ/J A NUTH 19-Phys Sci, NEC

**NAGW 2250 University of Arizona 1434**  
 NAGW-2250/UNIV ARIZONA/COUPLED PHYSICAL AND CHEMICAL  
 EVOLUTION OF THE SOLAR NEBULA: A CONSORTIUM STUDY  
*Period Obligations*  
 03/06/1991-10/31/1993 FY93: \$39,855 TOTAL: \$119,829  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J I LUNINE HQ/J A NUTH 19-Phys Sci, NEC

**NAGW 2253 University of Arizona 1435**  
 OPTICAL STUDIES OF CLUSTERED PARTICLES  
*Period Obligations*  
 05/21/1991-05/31/1994 FY93: \$50,000 TOTAL: \$150,033  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D R HUFFMAN HQ/J A NUTH 19-Phys Sci, NEC

**NAGW 2254 University of Arizona 1436**  
 OBSERVATIONAL AND THEORETICAL STUDIES OF CIRCUMSTELLAR  
 MATERIAL AT VERY HIGH SPATIAL RESOLUTION  
*Period Obligations*  
 05/21/1991-10/31/1993 FY93: \$25,239 TOTAL: \$80,369  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D MCCARTHY HQ/J A NUTH 19-Phys Sci, NEC

**NAGW 2255 University of Arizona 1437**  
 ASTROCHEMISTRY RELATING TO ORIGINS OF SOLAR SYSTEMS  
*Period Obligations*  
 02/22/1991-10/31/1993 FY93: \$45,000 TOTAL: \$135,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J H BLACK HQ/J A NUTH 19-Phys Sci, NEC

**NAGW 2291 University of Arizona 1438**  
 ENERGETIC PHENOMENA IN PROTOPLANETARY NEBULAE  
*Period Obligations*  
 02/26/1991-12/31/1993 FY93: \$44,000 TOTAL: \$132,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 E LEVY HQ/J A NUTH 19-Phys Sci, NEC

**NAGW 2301 University of Arizona 1439**  
 THE IDENTIFICATION OF ORDINARY CHONDRITE PARENT BO DIES:  
 APPLICATIONS OF SPECTRUM  
*Period Obligations*  
 06/13/1991-12/31/1993 FY93: \$32,075 TOTAL: \$96,225  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 L A LEBOWSKY HQ/W L QUAIDE 11-Astronomy

**NAGW 2315 University of Arizona 1440**  
 NAGW-2315/UNIV ARIZONA/GAS-PLASMA-GRAIN INTERACTIONS  
*Period Obligations*  
 05/23/1991-10/31/1993 FY93: \$25,000 TOTAL: \$75,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 L L HOOD HQ/J A NUTH 19-Phys Sci, NEC

**NAGW 2321 University of Arizona 1441**  
 DOPPLER SHIFT SEARCH FOR PLANETS ORBITING ASTROMETRIC  
 TARGET STARS  
*Period Obligations*  
 12/06/1990-10/31/1993 FY93: \$60,452 TOTAL: \$180,603  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R S MCMILLAN HQ/J A NUTH 19-Phys Sci, NEC

**NAGW 2342 University of Arizona 1442**  
 NEPTUNE RING/SATELLITE SYSTEM STUDIES: COMBINED ANALYSIS  
 OF VOYAGER 2 AND GROUND BASED OBSERVATIONS  
*Period Obligations*  
 03/11/1991-12/31/1993 FY93: \$44,418 TOTAL: \$139,274  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 C C PORCO HQ/W L QUAIDE 19-Phys Sci, NEC

**NAGW 2357 University of Arizona 1443**  
 DEVELOPMENT OF LIGHTWEIGHT MIRRORS FOR STRATOSPHERIC  
 AND SPACE INFRARED AND SUB  
*Period Obligations*  
 01/29/1991-12/30/1993 FY93: \$108,000 TOTAL: \$296,400  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 W F HOFFMAN HQ/M D BICAY 13-Physics

**NAGW 2358 University of Arizona 1444**  
 MAGNETOSPHERIC AND SOLAR RADIATION EFFECTS ON THE  
 NEPTUNIAN RING  
*Period Obligations*  
 01/29/1991-12/31/1992 FY93: \$0 TOTAL: \$115,269  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 E H LEVY HQ/W L QUAIDE 19-Phys Sci, NEC

**NAGW 2359 University of Arizona 1445**  
 SCIENTIFIC PROGRAM IN PLANETARY ATMOSPHERE STUDIES  
*Period Obligations*  
 03/05/1991-09/30/1993 FY93: \$60,000 TOTAL: \$224,150  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A L BROADFOOT HQ/J BERGSTRAHL 11-Astronomy

**NAGW 2360 University of Arizona 1446**  
 ANALYSIS OF EUV DAYGLOW SPECTRA OF TRITON, TITAN AND  
 EARTH  
*Period Obligations*  
 03/11/1991-12/31/1993 FY93: \$41,053 TOTAL: \$125,504  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R V YELLE HQ/W L QUAIDE 19-Phys Sci, NEC

**NAGW 2406 University of Arizona 1447**  
 PHOTOMETRIC MAPPING AND SURFACE COMPOSITION OF TRI-  
 TON  
*Period Obligations*  
 03/18/1991-12/31/1991 FY93: \$0 TOTAL: \$35,908  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 U FINK HQ/W L QUAIDE 19-Phys Sci, NEC

# NASA'S UNIVERSITY PROGRAM

## ARIZONA (Continued)

**NAGW 2425 University of Arizona 1448**  
 UTILIZATION OF EOS DATA IN QUANTIFYING THE PROCESS ES  
 CONTROLLING THE HYDROLOGIC CYCLE IN ARID REGIO  
*Period Obligations*  
 04/19/1991-12/31/1993 FY93: \$415,000 TOTAL: \$1,401,929  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S SOROOSHIAN HQ/G ASRAR 39-Env Sci, NEC  
 ....W S WILSON

**NAGW 2441 University of Arizona 1449**  
 NAGW-2441/UNIV ARIZONA/INTERPRETATION OF VOYAGER U VS  
 OBSERVATIONS AND OCCULTATIONS BY THE ATMOSPHERE  
*Period Obligations*  
 04/22/1991-12/31/1993 FY93: \$95,517 TOTAL: \$270,376  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 B R SANDELL HQ/W L QUAIDE 19-Phys Sci, NEC

**NAGW 2450 University of Arizona 1450**  
 MULTIDIMENSIONAL MODELS OF TYPE I SUPERNOVAE  
*Period Obligations*  
 04/12/1991-02/28/1994 FY93: \$160,000 TOTAL: \$470,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D ARNETT HQ/G S KUTTER 11-Astronomy  
 ....G R RIEGLER

**NAGW 2489 University of Arizona 1451**  
 A JOINT PROGRAM WITH JAPANESE INVESTIGATORS TO MAP  
 CARBON II LINE EMISSION FROM THE GALAXY  
*Period Obligations*  
 05/01/1991-12/31/1991 FY93: \$0 TOTAL: \$9,919  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 F LOW HQ/M BICAY 99-Multi-Discip

**NAGW 2493 University of Arizona 1452**  
 NAGW-2493/UNIV ARIZONA/MARS MESOSPHERE THERMOSPHER E  
 COUPLING  
*Period Obligations*  
 08/06/1991-03/31/1994 FY93: \$62,776 TOTAL: \$162,717  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S W BOUGHER HQ/J T BERGSTRALH 11-Astronomy

**NAGW 2537 University of Arizona 1453**  
 DETERMINATION OF STRATOSPHERIC THERMAL STRUCTURE A ND  
 METHANE ABUNDANCE FROM VOYAGER AND GROUND  
*Period Obligations*  
 06/13/1991-04/30/1994 FY93: \$88,549 TOTAL: \$248,534  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R V YELLE HQ/W L QUAIDE 19-Phys Sci, NEC

**NAGW 2549 University of Arizona 1454**  
 NAGW-2549/UNIV ARIZONA/THEORY OF COSMIC-RAY DIFFUSION  
 IN THE HELIOSPHERE  
*Period Obligations*  
 06/13/1991-02/28/1994 FY93: \$47,424 TOTAL: \$139,398  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J KOTA HQ/W V JONES 13-Physics  
 ....J C LING

**NAGW 2606 University of Arizona 1455**  
 THE INITIAL MASS FUNCTION AND CLOUD FRAGMENTATION  
*Period Obligations*  
 07/09/1991-06/30/1994 FY93: \$51,737 TOTAL: \$148,413  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 G H RIEKE HQ/J A NUTH 11-Astronomy

**NAGW 2648 University of Arizona 1456**  
 NAGW-2648/UNIV ARIZONA/A GUEST OBSERVER FACILITY F OR  
 ASTRONOMICAL OBSERVATIONS WITH THE VOYAGER ULT  
*Period Obligations*  
 08/19/1991-04/30/1993 FY93: \$0 TOTAL: \$193,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J B HALBERG HQ/R STACHMIK 11-Astronomy

**NAGW 2709 University of Arizona 1457**  
 DISK CORONAE AND TH EPHYSICS OF ACCRETION FLOWS IN  
 COMPACT X-RAY SOURCES  
*Period Obligations*  
 08/30/1991-06/30/1993 FY93: \$0 TOTAL: \$142,671  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 F MELIA HQ/G R RIEGLER 11-Astronomy

**NAGW 2720 University of Arizona 1458**  
 ASTRONOMICAL OBSERVATIONS WITH THE VOYAGER ULTRAVI  
 OLET SPECTROMETER  
*Period Obligations*  
 09/04/1991-03/31/1994 FY93: \$80,879 TOTAL: \$245,671  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 HOLBERG HQ/F GIOVANE 11-Astronomy

**NAGW 2752 University of Arizona 1459**  
 LUNAR TRANSIT TELESCOPE: AN INITIAL INVESTIGATION  
*Period Obligations*  
 09/27/1991-09/30/1992 FY93: \$0 TOTAL: \$51,125  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 U FINK HQ/W L QUAIDE 11-Astronomy  
 ....P B ULRICH

**NAGW 2761 University of Arizona 1460**  
 INSTRUMENTATION UPGRADE AND DEVELOPMENT  
*Period Obligations*  
 11/01/1991-05/31/1994 FY93: \$0 TOTAL: \$124,736  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 U FINK HQ/W L QUAIDE 11-Astronomy

**NAGW 2772 University of Arizona 1461**  
 PLANETARY AERONOMY AND RELATED STUDIES  
*Period Obligations*  
 11/15/1991-09/30/1993 FY93: \$50,000 TOTAL: \$100,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D M HUNTEN HQ/W L QUAIDE 11-Astronomy

**NAGW 2822 University of Arizona 1462**  
 A MULTI-WAVELENGTH STUDY OF THE INNER 3-PC REGION AT  
 THE GALACTIC CENTER  
*Period Obligations*  
 01/03/1992-11/30/1993 FY93: \$82,300 TOTAL: \$159,454  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 F MELIA HQ/G R RIEGLER 11-Astronomy

**NASA'S UNIVERSITY PROGRAM**  
**ARIZONA (Continued)**

**NAGW 2831 University of Arizona 1463**  
 NAGW-2831/UNIV ARIZONA/STUDIES OF EXTENDED PLANETARY  
*Period Obligations*  
 01/15/1992-12/31/1993 FY93: \$80,000 TOTAL: \$174,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D M HUNTEN HQ/W L QUAIDE 11-Astronomy

**NAGW 2850 University of Arizona 1464**  
 NICMOS SUPPORT  
*Period Obligations*  
 01/29/1992-12/31/1993 FY93: \$87,125 TOTAL: \$174,250  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R I THOMPSON HQ/L J CAROFF 11-Astronomy

**NAGW 2864 University of Arizona 1465**  
 FAR INFRARED AND SUB-M DETECTION TECHNIQUES  
*Period Obligations*  
 02/03/1992-12/31/1993 FY93: \$1,808,000 TOTAL: \$3,454,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 G RIEKE HQ/L J CAROFF 11-Astronomy

**NAGW 2877 University of Arizona 1466**  
 GROPHYSICAL AND GEOLOGICAL INVESTIGATIONS OF TRITO N  
*Period Obligations*  
 02/10/1992-03/31/1993 FY93: \$0 TOTAL: \$42,090  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R G STROM HQ/W L QUAIDE 19-Phys Sci, NEC

**NAGW 2878 University of Arizona 1467**  
 PHYSICAL STUDIES OF SMALL ASTEROIDS, COMETARY AND  
 GALILEO TARGETS 243 IDA AND 951 GASPRA  
*Period Obligations*  
 02/10/1992-11/30/1993 FY93: \$66,995 TOTAL: \$116,995  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 W WISNIEWSKI HQ/W L QUAIDE 11-Astronomy

**NAGW 2882 University of Arizona 1468**  
 SPACE SCIENCE SERIES  
*Period Obligations*  
 02/13/1992-12/31/1992 FY93: \$0 TOTAL: \$60,756  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 T GEHRELS HQ/W L QUAIDE 11-Astronomy

**NAGW 2884 University of Arizona 1469**  
 CONSTRAINTS ON THE FORMATION OF THE TERRESTRIAL PL  
 ANETS FROM EXPERIMENTAL GEOCHEMISTRY  
*Period Obligations*  
 02/07/1992-01/31/1994 FY93: \$34,998 TOTAL: \$59,998  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M J DRAKE HQ/J A NUTH III 19-Phys Sci, NEC

**NAGW 3051 University of Arizona 1470**  
 NAGW-3051/UNIV ARIZONA/AURORA ON NEPTUNE  
*Period Obligations*  
 11/17/1992-06/30/1994 FY93: \$0 TOTAL: \$40,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A J DESSLER HQ/H C BRINTON 32-Geological Sci

**NAGW 3076 University of Arizona 1471**  
 NAGW-3076/UNIV ARIZONA/INSTRUMENTATION FOR CHEMICA L  
 ANALYSIS OF PLANETARY SURFACES  
*Period Obligations*  
 06/12/1992-03/31/1994 FY93: \$333,625 TOTAL: \$633,380  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 W V BOYNTON HQ/H C BRINTON 19-Phys Sci, NEC

**NAGW 3084 University of Arizona 1472**  
 LUNAR ORBITAL DYNAMICS THROUGH GEOLOGIC AGES AS  
 REVEALED BY TIDAL RHYTHMITES  
*Period Obligations*  
 07/01/1992-06/30/1994 FY93: \$74,519 TOTAL: \$132,711  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 C P SONETT HQ/J K ALEXANDER 32-Geological Sci  
 ....D A HOLLAND

**NAGW 3160 University of Arizona 1473**  
 X-RAY STUDIES OF THE NEARBY STARS  
*Period Obligations*  
 08/11/1992-07/31/1993 FY93: \$0 TOTAL: \$90,421  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 T FLEMING HQ/G R RIEGLER 11-Astronomy

**NAGW 3166 University of Arizona 1474**  
 NAGW-3166/UNIV ARIZONA/LITHOGRAPHIC AND STRUCTURAL  
 INFLUENCES ON LANDSCAPE FRACTAL DIMENSION  
*Period Obligations*  
 08/21/1992-01/31/1994 FY93: \$0 TOTAL: \$28,496  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 C CHASE HQ/M BALTUCK 31-Atmos Sci

**NAGW 3197 University of Arizona 1475**  
 NAGW-3197/UNIV ARIZONA/INSECT DEVELOPMENT IN ALTERED  
 GRAVITATIONAL ENVIRONMENT  
*Period Obligations*  
 08/21/1992-08/31/1994 FY93: \$54,986 TOTAL: \$109,972  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M E TISCHLER HQ/T W HALSTEAD 51-Biological Sci

**NAGW 3199 University of Arizona 1476**  
 NAGW-3199/UNIV ARIZONA/ASSESSING THE ROLE OF RADIO  
 CARBON IN SOILS IN THE GLOBAL CARBON CYCLE  
*Period Obligations*  
 08/28/1992-07/31/1992 FY93: \$0 TOTAL: \$12,500  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R S KRA HQ/M BALTUCK 32-Geological Sci

**NAGW 3263 University of Arizona 1477**  
 NAGW-3263/UNIV ARIZONA/IMAGE PROCESSING FOR TEACHING  
*Period Obligations*  
 11/27/1992-07/31/1993 FY93: \$4,800 TOTAL: \$4,800  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J B HOLBERG HQ/L LAPIANA 11-Astronomy  
 ....G P NEWTON

**NASA'S UNIVERSITY PROGRAM**  
**ARIZONA (Continued)**

**NAGW 3348 University of Arizona 1478**  
 GEOCHEMICAL EVOLUTION OF THE EARTH  
*Period Obligations*  
 01/15/1993-12/14/1993 FY93: \$177,608 TOTAL: \$177,608  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M J DRAKE HQ/H C BRINTON 32-Geological Sci

**NAGW 3432 University of Arizona 1486**  
 STGCM ANALYSIS OF PIONEER VENUS ORBITER ENTRY DATA  
*Period Obligations*  
 02/28/1993-03/03/1993 FY93: \$22,973 TOTAL: \$22,973  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S W BOUGHER HQ/J T BERGSTRAHL 31-Atmos Sci

**NAGW 3368 University of Arizona 1479**  
 THE AGGREGATE REPRESENTATION OF TERRESTRIAL LAND COVERS  
*Period Obligations*  
 02/02/1993-12/31/1993 FY93: \$125,223 TOTAL: \$125,223  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 W J SHUTTLEWORTH HQ/R E MURPHY 39-Env Sci, NEC

**NAGW 3440 University of Arizona 1487**  
 TOMOGRAPHIC ANALYSIS OF VOYAGER ULTRAVIOLET SPECTROMETER OBSERVATIONS OF THE IO PLASMA TORUS  
*Period Obligations*  
 03/15/1993-12/31/1993 FY93: \$54,500 TOTAL: \$54,500  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 F HERBERT HQ/E C WHIPPLE 13-Physics

**NAGW 3373 University of Arizona 1480**  
 MINERALOGIC AND TRACE ELEMENT STUDIES OF METEORITE S AND METEORITE IMPACTS  
*Period Obligations*  
 02/10/1993-12/14/1993 FY93: \$172,000 TOTAL: \$172,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 W BOYNTON HQ/H C BRINTON 32-Geological Sci

**NAGW 3455 University of Arizona 1488**  
 THE FIRST SYMPOSIUM ON THE INFRARED CIRRUS AND DIF FUSE INTERSTELLAR CLOUDS  
*Period Obligations*  
 03/18/1993-02/28/1994 FY93: \$5,000 TOTAL: \$5,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R M CUTRI HQ/L J CAROFF 11-Astronomy

**NAGW 3382 University of Arizona 1481**  
 MID INFRARED SPECTROSCOPY OF THE MOON MERCURY AND ASTEROIDS  
*Period Obligations*  
 02/18/1993-01/31/1994 FY93: \$15,000 TOTAL: \$15,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A L SPRAGUE HQ/H C BRINTON 11-Astronomy

**NAGW 3515 University of Arizona 1489**  
 ORIGIN OF VENUSIAN CHANNELS, VALLEYS, AND RELATED PHENOMENA  
*Period Obligations*  
 04/09/1993-03/31/1994 FY93: \$60,000 TOTAL: \$60,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 V R BAKER HQ/J T BERGSTRAHL 32-Geological Sci

**NAGW 3400 University of Arizona 1482**  
 ORIGIN AND EVOLUTION OF PLANETARY ATMOSPHERE  
*Period Obligations*  
 03/15/1993-01/31/1994 FY93: \$64,948 TOTAL: \$64,948  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J LEWIS HQ/H C BRINTON 19-Phys Sci, NEC

**NAGW 3543 University of Arizona 1490**  
 NAGW-3543/UNIV ARIZONA/SEAWIFS CALIBRATION AND ALG ORTHM VALIDATION  
*Period Obligations*  
 04/21/1993-12/31/1993 FY93: \$64,079 TOTAL: \$64,079  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 P N SLATER HQ/D E WICKLAND 33-Oceanography  
 ....A C JANETOS

**NAGW 3406 University of Arizona 1483**  
 PHYSICS OF CIRCUMSTELLAR ACCRETION DISKS  
*Period Obligations*  
 02/18/1993-02/28/1994 FY93: \$45,690 TOTAL: \$45,690  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 W BENZ HQ/J A NUTH 19-Phys Sci, NEC

**NAGW 3555 University of Arizona 1491**  
 EXTRACTION OF SOIL AND VEGETATION PARAMETERS FROM HIGH RESOLUTION BI-DIRECTIONAL REFLECTANCE SPECTRA  
*Period Obligations*  
 04/30/1993-05/31/1994 FY93: \$43,530 TOTAL: \$43,530  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A R HUETE HQ/D E WICKLAND 39-Env Sci, NEC  
 ....A C JANETOS

**NAGW 3410 University of Arizona 1484**  
 ASPECTS OF IMPACT CRATERING ON VENUS  
*Period Obligations*  
 03/01/1993-02/28/1994 FY93: \$45,970 TOTAL: \$45,970  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 H J MELOSH HQ/J T BERGSTRAHL 32-Geological Sci

**NAGW 3562 University of Arizona 1492**  
 IMPACT MELT PRODUCTION ON VENUS  
*Period Obligations*  
 05/13/1993-03/31/1994 FY93: \$35,000 TOTAL: \$35,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A M VICKERY HQ/J T BERGSTRAHL 32-Geological Sci

**NAGW 3411 University of Arizona 1485**  
 STUDIES IN PLANETARY RINGS  
*Period Obligations*  
 02/18/1993-12/31/1993 FY93: \$30,000 TOTAL: \$30,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 C C PORCO HQ/J M BOYCE 32-Geological Sci



**NASA'S UNIVERSITY PROGRAM**  
**ARIZONA (Continued)**

**NAGW 3611 University of Arizona 1493**  
 NOBLE GAS STUDIES OF EARLY SOLAR SYSTEM HISTORY  
*Period Obligations*  
 05/21/1993-05/31/1994 FY93: \$25,750 TOTAL: \$25,750  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 T SWINDLE HQ/J BOYCE 32-Geological Sci

**NAGW 3614 University of Arizona 1494**  
 COSMOGENIC <sup>14</sup>C IN ANTARCTIC AND NON-ANTARCTIC METEORITES AND LUNAR SAMPLES  
*Period Obligations*  
 05/24/1993-05/31/1994 FY93: \$35,019 TOTAL: \$35,019  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A J JULL HQ/J M BOYCE 32-Geological Sci

**NAGW 3631 University of Arizona 1495**  
 ANALYSIS OF VOYAGER OCCULTATION MEASUREMENTS OF THE ATMOSPHERES OF TITAN AND TRITON  
*Period Obligations*  
 05/28/1993-04/30/1994 FY93: \$9,381 TOTAL: \$9,381  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R V YELLE HQ/J T BERGSTRALH 19-Phys Sci, NEC

**NAGW 3635 University of Arizona 1496**  
 MISSION OF OPPORTUNITY: IN SITU MEASUREMENTS OF ENERGY NEUTRAL ATOMS  
*Period Obligations*  
 06/16/1993-09/30/1993 FY93: \$39,884 TOTAL: \$39,884  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 C CURTIS HQ/E C WHIPPLE 13-Physics  
 ....J D BOHLIN

**NAGW 3638 University of Arizona 1497**  
 CATION ORDERING AND COMPOSITIONAL ZONING IN METEORITIC OTHOPYROXENES: IMPLICATIONS FOR COOLING RATE  
*Period Obligations*  
 07/05/1993-07/31/1994 FY93: \$38,110 TOTAL: \$38,110  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J GANGULY HQ/J M BOYCE 32-Geological Sci

**NAGW 3657 University of Arizona 1498**  
 THE VOYAGER ULTRAVIOLET SPECTROMETER EXPERIMENT THROUGH THE VOYAGER INTERSTELLAR MISSION  
*Period Obligations*  
 06/16/1993-03/31/1994 FY93: \$160,000 TOTAL: \$160,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A BROADFOOT HQ/W V JONES 13-Physics  
 ....J D BOHLIN

**NAGW 3705 University of Arizona 1499**  
 IMPACT CRATER INVESTIGATIONS OF VENUS  
*Period Obligations*  
 08/11/1993-03/14/1994 FY93: \$30,000 TOTAL: \$30,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R G STROM HQ/J T BERGSTRALH 32-Geological Sci

**NAGW 3717 University of Arizona 1500**  
 DEVELOPMENT OF GAMMA-RAY SPECTROMETERS FOR REMOTE-SENSING AND IN-SITU ANALYSES  
*Period Obligations*  
 08/26/1993-05/31/1994 FY93: \$24,984 TOTAL: \$24,984  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 W V BOYNTON HQ/H C BRINTON 19-Phys Sci, NEC

**NAG10-92 University of Arizona 1501**  
 LIGHTNING FIELD CHANGES AND DISPLACEMENT—CURRENTS AT KSC  
*Period Obligations*  
 08/12/1991-06/30/1994 FY93: \$0 TOTAL: \$100,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 E P KRIDER KSC/W JAFFERIS 31-Atmos Sci

**NAS 1-18939 University of Arizona 1502**  
 SAGE III SCIENCE INVESTIGATION SUPPORT - P.I. - B. HERMAN  
*Period Obligations*  
 02/28/1990-01/31/1995 FY93: \$15,000 TOTAL: \$76,500  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 B M HERMAN LARC/G L MADDREA JR 31-Atmos Sci  
 ....L R MCMASTER

**NAS 1-19953 University of Arizona 1503**  
 SCIENCE SUPPORT TO THE LITE SCIENCE TEAM  
*Period Obligations*  
 05/24/1993-05/23/1995 FY93: \$25,000 TOTAL: \$25,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J A REAGAN LARC/G L MADDREA 31-Atmos Sci

**NAS 2-13464 University of Arizona 1504**  
 SERVICES TO SUPPORT THE OPERATION AND MAINTENANCE OF THE NASA 1.5 METER TELESCOPE AT MT LEMMON, AZ  
*Period Obligations*  
 10/29/1991-07/31/1994 FY93: \$139,239 TOTAL: \$418,752  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M RIEKE ARC/C D LAUGHLIN 11-Astronomy

**NAS 5-30124 University of Arizona 1505**  
 SCIENTIFIC INTERPRETATION OF GPMS DATA  
*Period Obligations*  
 08/10/1987-09/30/1994 FY93: \$0 TOTAL: \$82,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D HUNTEN GSFC/J R RICHARDS 31-Atmos Sci

**NAS 5-30781 University of Arizona 1506**  
 ABSOLUTE RADIOMETRIC CALIBRATION OF MODIS-N  
*Period Obligations*  
 03/19/1990-14/1992 FY93: \$0 TOTAL: \$521,464  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 P N SLATER GSFC/H OSEROFF 31-Atmos Sci

**NAS 5-31289 University of Arizona 1507**  
 DEVELOPMENT OF THE HST SECOND GENERATION INSTRUMENT TITLED NICMOS  
*Period Obligations*  
 12/20/1990-12/31/1996 FY93: \$8,903,000 TOTAL: \$17,674,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R L THOMPSON GSFC/M M JURUTICH 41-Aero Engr

**NASA'S UNIVERSITY PROGRAM**  
**ARIZONA (Continued)**

**NAS 5-31364 University of Arizona 1508**  
 EOS/MODIS INVESTIGATION FROM DR. HUETE  
*Period Obligations*  
 01/24/1992-12/14/2001 FY93: \$220,000 TOTAL: \$394,609  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A HUETE GSFC/H OSEROFF 31-Atmos Sci

**NAS 5-31717 University of Arizona 1509**  
 EOS INVESTIGATION  
*Period Obligations*  
 01/03/1992-12/15/2001 FY93: \$708,000 TOTAL: \$1,311,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 P N SLATER GSFC/L STUART 31-Atmos Sci

**NAS 9-16838 University of Arizona 1510**  
 LYMPHOCYTE PROLIFERATION WEIGHTLESSNESS  
*Period Obligations*  
 02/23/1993-10/01/1992 FY93: \$0 TOTAL: \$134,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 B S CRISWELL JSC/K NEWKIRK 59-Life Sci, NEC

**NAS 9-18433 University of Arizona 1511**  
 FLIGHT RELATED STUDIES/ENHANCED HYBRIDOMA PRO- DUCION  
 UNDER MICROGRAVITY  
*Period Obligations*  
 04/15/1991-05/01/1994 FY93: \$87,801 TOTAL: \$984,801  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D W SAMMONS JSC/S R GONDA 51-Biological Sci  
 G A NEIL

**NCA 2-702 University of Arizona 1512**  
 THE ROLE OF COMPOSITION GRADIENTS IN THE EVOLUTION OF  
 URANUS AND NEPTUNE  
*Period Obligations*  
 03/27/1992-12/31/1992 FY93: \$0 TOTAL: \$26,516  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 W B HUBBARD ARC/J B POLLACK 11-Astronomy

**NCA 2-709 University of Arizona 1513**  
 IMPLICIT SCHEMES FOR ACOUSTIC EQUATIONS ON NONUNIFORM  
 MESHES  
*Period Obligations*  
 04/17/1992-11/01/1992 FY93: \$0 TOTAL: \$10,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 K Y FUNG ARC/S DAVIS 41-Aero Engr

**NCA 2-783 University of Arizona 1514**  
 AN EXAMINATION OF CREW MANAGEMENT, COORDINATION, AND  
 WORK ROLES  
*Period Obligations*  
 02/04/1993-02/14/1994 FY93: \$17,057 TOTAL: \$17,057  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S CONLEY ARC/B KANKI 62-Social Aspects

**NCA 2-822 University of Arizona 1515**  
 ATMOSPHERIC EFFECTS OF GIANT IMPACTS  
*Period Obligations*  
 06/03/1993-12/31/1993 FY93: \$10,390 TOTAL: \$10,390  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 H J MELOSH ARC/J B POLLACK 11-Astronomy

**NCC 2-329 University of Arizona 1516**  
 ANALYSIS OF TURBULENCE ENCOUNTERS USING AIRLINE DIGITAL  
 FLIGHT RECORDS  
*Period Obligations*  
 01/01/1985-02/28/1994 FY93: \$29,571 TOTAL: \$144,956  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 E K PARKS ARC/R E BACH 41-Aero Engr

**NCC 2-667 University of Arizona 1517**  
 CALIBRATION OF GAAS PHOTOMULTIPLIER TUBES FOR STA  
 NDARDIZATION OF THE SSPM DETECTOR  
*Period Obligations*  
 04/26/1990-11/30/1993 FY93: \$2,998 TOTAL: \$11,944  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 W Z WISNIEWSKI ARC/J H GOEBEL 11-Astronomy  
 J H GOEBEL ....C R MCCREIGHT

**NCC 3-219 University of Arizona 1518**  
 ENGINEERING SUPPORT OF PROPULSION CONCEPTS  
*Period Obligations*  
 06/11/1991-10/09/1991 FY93: \$1 TOTAL: \$6,072  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 K RAMOHALL LERC/D L LINNE 42-Astro Engr  
 J COLVIN ....A F HEPP

**NGT 00-010-001 University of Arizona 1519**  
 ASTRONOMY PRE-SERVICE FOR FUTURE ELEMENTARY SCHOOL  
 TEACHERS  
*Period Obligations*  
 06/04/1993-03/31/1994 FY93: \$82,575 TOTAL: \$82,575  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 L A LEBOSKY HQ/D V GALLAWAY 11-Astronomy

**NGT 00-030-021 University of Arizona 1520**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
 10/17/1990-03/31/1994 FY93: \$0 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 C L GROTEBECK HQ/G ASRAR 31-Atmos Sci

**NGT 00-030-045 University of Arizona 1521**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
 08/23/1991-08/31/1994 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 X GAO HQ/D M BUTLER 39-Env Sci, NEC  
 S SOROOSHIAN ....G S WILSON

**NGT 00-030-136 University of Arizona 1522**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
 10/21/1992-08/31/1994 FY93: \$44,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 P R HOUSER HQ/G ASRAR 99-Multi-Discip  
 ....D M BUTLER

**NGT 00-030-173 University of Arizona 1523**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
 08/24/1993-08/31/1996 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 C V HAYNES, J.R. HQ/G ASRAR 32-Geological Sci  
 ....D M BUTLER

**NASA'S UNIVERSITY PROGRAM**  
**ARIZONA (Continued)**

**NGT 00-030-181 University of Arizona 1524**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
 08/27/1993-08/31/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J RANGER-MOORE HQ/G ASRAR 99-Multi-Discip  
 ....D M BUTLER

**NGT 00-030-215 University of Arizona 1525**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
 08/24/1993-08/31/1996 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J A REAGAN HQ/G ASRAR 99-Multi-Discip  
 ....D M BUTLER

**NGT 00-040-006 University of Arizona 1526**  
 NATIONAL SPACE GRANT COLLEGE AND FELLOWSHIP PROGRAM  
*Period Obligations*  
 11/29/1989-01/31/1994 FY93: \$382,996 TOTAL: \$1,487,996  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 E LEVY HQ/E T SCHWARTZ 99-Multi-Discip

**NGT 00-050-270 University of Arizona 1527**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 08/01/1988-08/31/1992 FY93: \$2,766 TOTAL: \$77,234  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M L LEVINE HQ/F C OWENS 51-Biological Sci  
 M BIER

**NGT 00-050-303 University of Arizona 1528**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 07/19/1988-07/31/1992 FY93: \$0 TOTAL: \$58,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D E SHEMANSKY HQ/F C OWENS 13-Physics

**NGT 00-050-382 University of Arizona 1529**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 08/17/1988-09/15/1992 FY93: \$0 TOTAL: \$58,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 F LOW HQ/F C OWENS 13-Physics

**NGT 00-050-477 University of Arizona 1530**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 08/31/1989-08/31/1992 FY93: \$0 TOTAL: \$62,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 H J MELOSH HQ/F C OWENS 19-Phys Sci, NEC

**NGT 00-050-479 University of Arizona 1531**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 08/14/1989-08/31/1992 FY93: \$0 TOTAL: \$62,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J I LUNINE HQ/F C OWENS 19-Phys Sci, NEC

**NGT 00-050-493 University of Arizona 1532**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 07/28/1989-06/30/1992 FY93: \$0 TOTAL: \$62,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 C TIPTON HQ/F C OWENS 59-Life Sci, NEC

**NGT 00-050-579 University of Arizona 1533**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 07/06/1990-12/31/1992 FY93: \$0 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 T MILSTER HQ/F C OWENS 22-Computer Science

**NGT 00-050-582 University of Arizona 1534**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 07/24/1990-10/31/1993 FY93: \$0 TOTAL: \$63,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R NARAYAN HQ/F C OWENS 11-Astronomy

**NGT 00-050-612 University of Arizona 1535**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 07/09/1990-12/31/1993 FY93: \$0 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M J DRAKE HQ/F C OWENS 32-Geological Sci

**NGT 00-050-626 University of Arizona 1536**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 07/24/1990-08/31/1993 FY93: \$0 TOTAL: \$64,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S SOROOSHIAN HQ/F C OWENS 13-Physics

**NGT 00-050-661 University of Arizona 1537**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 07/25/1990-08/14/1993 FY93: \$0 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 U FINK HQ/F C OWENS 13-Physics

**NGT 00-050-662 University of Arizona 1538**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 08/07/1990-08/14/1993 FY93: \$0 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 V R BAKER HQ/F C OWENS 32-Geological Sci

**NGT 00-050-704 University of Arizona 1539**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 08/15/1991-08/31/1994 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J A REAGAN HQ/F C OWENS 45-Elec Engr

**NASA'S UNIVERSITY PROGRAM**  
**ARIZONA (Continued)**

**NGT 00-050-737 University of Arizona 1540**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 06/25/1991-08/04/1994 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 B FABES HQ/F C OWENS 47-Materials Engr

**NGT 00-050-966 University of Arizona 1548**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 06/26/1992-06/30/1994 FY93: \$22,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R D SCHLICHTING HQ/P HUNTER 22-Computer Science

**NGT 00-050-758 University of Arizona 1541**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 11/26/1991-08/14/1994 FY93: \$44,000 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R GREEN GSFC/G SOFFEN 11-Astronomy

**NGT 00-051-092 University of Arizona 1549**  
 GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 06/01/1993-06/30/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 C M TIPTON HQ/R WHITE 59-Life Sci, NEC

**NGT 00-050-782 University of Arizona 1542**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 06/25/1991-06/30/1994 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 H P LARSON HQ/F C OWENS 31-Atmos Sci

**NGT 00-051-111 University of Arizona 1550**  
 GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 09/02/1993-07/31/1994 FY93: \$6,000 TOTAL: \$6,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J REAGAN LARC/E J PRIOR 45-Elec Engr

**NGT 00-050-794 University of Arizona 1543**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 06/25/1991-10/31/1992 FY93: \$422 TOTAL: \$27,726  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 P N SLATER HQ/F C OWENS 19-Phys Sci, NEC

**NGT 00-051-122 University of Arizona 1551**  
 GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 06/02/1993-07/31/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J C BAYGENTS HQ/D A HOLLAND 21-Mathematics

**NGT 00-050-796 University of Arizona 1544**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 06/10/1991-06/30/1993 FY93: \$0 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 H J MELOSH HQ/F C OWENS 11-Astronomy

**NGT 00-051-127 University of Arizona 1552**  
 GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 06/23/1993-08/14/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J I LUNINE HQ/D HOLLAND 11-Astronomy

**NGT 00-050-857 University of Arizona 1545**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 07/15/1991-08/21/1994 FY93: \$22,000 TOTAL: \$65,712  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M RIEKE HQ/F C OWENS 11-Astronomy

**NGT 00-051-139 University of Arizona 1553**  
 GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 07/25/1993-08/31/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 E H LEVY HQ/D HOLLAND 11-Astronomy

**NGT 00-050-920 University of Arizona 1546**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 07/14/1992-07/30/1994 FY93: \$22,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 P N SLATER HQ/J ALEXANDER 45-Elec Engr

**NGT 00-051-152 University of Arizona 1554**  
 GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 08/03/1993-07/31/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 C D IMPEY HQ/D HOLLAND 11-Astronomy

**NGT 00-050-962 University of Arizona 1547**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 06/26/1992-07/31/1994 FY93: \$22,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 B SANDEL HQ/J ALEXANDER 11-Astronomy

**NGT 00-070-203 University of Arizona 1555**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
 MINORITY FOCUS PROGRAM  
*Period Obligations*  
 07/26/1990-06/30/1993 FY93: \$0 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M E TISCHLER HQ/F C OWENS 59-Life Sci, NEC

**NASA'S UNIVERSITY PROGRAM**  
**ARIZONA (Continued)**

**NGT 00-070-256 University of Arizona 1556**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
 MINORITY FOCUS PROGRAM  
*Period Obligations*  
 07/08/1992-06/30/1994 FY93: \$44,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 W RASMUSSEN HQ/D K RUSSELL 43-Chem Engr

**NAGW 3519 University of Arkansas - Fayetteville 1563**  
 CHEMICAL AND PHYSICAL STUDIES OF EXTRATERRESTRIAL  
 MATERIALS  
*Period Obligations*  
 04/09/1993-02/28/1994 FY93: \$60,770 TOTAL: \$60,770  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D SEARS HQ/H C BRINTON 32-Geological Sci

**NSG-7558 University of Arizona 1557**  
 PLANETARY AERONOMY AND RELATED STUDIES  
*Period Obligations*  
 03/01/1979-06/30/1992 FY93: \$0 TOTAL: \$509,259  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D M HUNTEN HQ/J T BERGSTRALH 31-Atmos Sci  
 ....W L QUAIDE

**NAG 2-689 University of Arkansas - Little Rock 1564**  
 SPECTROPHONIC MEASUREMENTS OF SOOT AND ICE PARTIC LES  
*Period Obligations*  
 12/11/1990-09/30/1992 FY93: \$0 TOTAL: \$34,951  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M K MAZUMDER ARC/R F PUESCHEL 45-Elec Engr  
 ....K G SNETSINGER

**ARKANSAS**

**NAG 9-635 Arkansas College 1558**  
 REDUCTION OF SIMULATED LUNAR SOIL USING CARBON  
*Period Obligations*  
 08/24/1992-08/31/1993 FY93: \$0 TOTAL: \$15,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R BUSTIN JSC/S H GOLDSTEIN 32-Geological Sci

**NAG 8-276 University of Arkansas - Little Rock 1565**  
 JOVE  
*Period Obligations*  
 01/15/1993-05/31/1994 FY93: \$58,521 TOTAL: \$58,521  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 T VISWANATHAN MSFC/F SIX 19-Phys Sci, NEC  
 D C WOLD

**NAG 8-277 Arkansas State University 1559**  
 JOVE  
*Period Obligations*  
 12/30/1992-05/30/1994 FY93: \$74,970 TOTAL: \$74,970  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 B BENNETT MSFC/F SIX 19-Phys Sci, NEC  
 A SUSTICH

**NAG13-26 University of Arkansas - Little Rock 1566**  
 SPECTROSCOPIC CHARACTERIZATION OF HYBRID ROCKET  
 PLUMES  
*Period Obligations*  
 05/17/1993-11/17/1993 FY93: \$19,974 TOTAL: \$19,974  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 K HUDSON SSC/W W ST. CYR 13-Physics

**NAG 8-197 Harding University 1560**  
 A NASA/HARDING UNIVERSITY JOINT VENTURE IN SPACE  
 SCIENCE  
*Period Obligations*  
 04/29/1991-04/08/1994 FY93: \$24,000 TOTAL: \$89,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J MACKEY MSFC/N F SIX 11-Astronomy

**NGT 00-040-036 University of Arkansas - Little Rock 1567**  
 NATIONAL SPACE GRANT COLLEGE AND FELLOWSHIP PROGRA M  
*Period Obligations*  
 04/17/1991-02/28/1994 FY93: \$173,000 TOTAL: \$493,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 G M NORTHROP HQ/E T SCHWARTZ 99-Multi-Discip

**NAG 9-81 University of Arkansas - Fayetteville 1561**  
 CHEMICAL + PHYSICAL STUDIES TYPE 3 CHOND  
*Period Obligations*  
 03/01/1984-03/01/1994 FY93: \$0 TOTAL: \$558,499  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D W SEARS JSC/I D BROWNE 32-Geological Sci

**NGT 00-050-886 University of Arkansas - Little Rock 1568**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 05/15/1992-06/30/1994 FY93: \$22,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M K HUDSON SSC/A JOYCE 45-Elec Engr

**NAGW 3479 University of Arkansas - Fayetteville 1562**  
 NATURAL THERMOLUMINESCENCE OF ANTARCTIC METEORITES  
 AND RELATED STUDIES  
*Period Obligations*  
 03/27/1993-02/28/1994 FY93: \$23,175 TOTAL: \$23,175  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D SEARS HQ/H C BRINTON 32-Geological Sci

**NGT 00-051-013 University of Arkansas - Little Rock 1569**  
 GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 05/06/1993-06/30/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M K HUDSON SSC/A JOYCE 45-Elec Engr

# NASA'S UNIVERSITY PROGRAM CALIFORNIA

## CALIFORNIA

**NAG 1-842 California Institute of Technology 1570**  
BASIC INVESTIGATION OF A CONTOURED WALL INJECTOR F OR  
HYPERVELOCITY MIXING

Period	Obligations	
02/08/1988-05/31/1993	FY93: \$1	TOTAL: \$480,001
Prin. Invest.	NASA Tech. Officer	CASE Category
F E MARBLE	LARC/J B ANDERS	41-Aero Engr

**NAG 1-1203 California Institute of Technology 1571**  
CONSTITUTIVE BEHAVIOR RELEVANT TO TOUGH MATRIX  
MATERIALS AND MECHANICS OF COMPOSITES

Period	Obligations	
12/21/1990-09/30/1993	FY93: \$81,308	TOTAL: \$301,458
Prin. Invest.	NASA Tech. Officer	CASE Category
W G KNAUSS	LARC/T S GATES	41-Aero Engr

**NAG 1-1209 California Institute of Technology 1572**  
RESEARCH ON SCRAM-JET COMBUSTORS

Period	Obligations	
02/13/1991-01/31/1994	FY93: \$136,460	TOTAL: \$416,160
Prin. Invest.	NASA Tech. Officer	CASE Category
H G HORNUNG	LARC/R C ROGERS	41-Aero Engr
	..../G Y ANDERSON	

**NAG 2-605 California Institute of Technology 1573**  
HETERODYNE OBSERVATIONS OF GALACTIC C11 ON THE NA SA  
KUIPER AIRBORNE OBSERVATORY

Period	Obligations	
10/06/1989-09/30/1993	FY93: \$0	TOTAL: \$66,583
Prin. Invest.	NASA Tech. Officer	CASE Category
J KEENE	ARC/C D LAUGHLIN	11-Astronomy
	..../H A HENDRIKS	

**NAG 2-621 California Institute of Technology 1574**  
SKIN FRICTION MEASUREMENT IN COMPLEX FLOWS

Period	Obligations	
12/29/1989-10/31/1993	FY93: \$40,050	TOTAL: \$190,848
Prin. Invest.	NASA Tech. Officer	CASE Category
H G HORNUNG	ARC/D J KOGA	41-Aero Engr

**NAG 2-732 California Institute of Technology 1575**  
PREPARATION OF SOFTWARE TO ACCOMPANY A MONOGRAPH-  
INTRODUCTION TO AIRFOIL THEORY

Period	Obligations	
09/04/1991-09/30/1993	FY93: \$0	TOTAL: \$25,839
Prin. Invest.	NASA Tech. Officer	CASE Category
F E CULICK	ARC/R M HICKS	41-Aero Engr

**NAG 2-744 California Institute of Technology 1576**  
SUBMILLIMETER SPECTROSCOPY WITH A 500-100 GHZ SIS  
RECEIVER

Period	Obligations	
12/03/1991-09/30/1994	FY93: \$185,700	TOTAL: \$517,700
Prin. Invest.	NASA Tech. Officer	CASE Category
J ZMUIDZINAS	ARC/C D LAUGHLIN	11-Astronomy
	..../C M GILLESPIE	

**NAG 2-764 California Institute of Technology 1577**  
QUANTITATIVE UNDERSTANDING OF CYCLES OF OXIDIZED AND  
REDUCED SULFUR ON VENUS

Period	Obligations	
02/26/1992-02/28/1994	FY93: \$0	TOTAL: \$40,000
Prin. Invest.	NASA Tech. Officer	CASE Category
Y L YUNG	ARC/L E LASHER	11-Astronomy
	..../R O FIMMEL	

**NAG 2-792 California Institute of Technology 1578**  
ROBUST NONLINEAR CONTROL OF VECTORED THRUST AIRCRA  
FT

Period	Obligations	
07/31/1992-05/31/1994	FY93: \$57,022	TOTAL: \$112,285
Prin. Invest.	NASA Tech. Officer	CASE Category
J C DOYLE	ARC/M J BRENNER	41-Aero Engr

**NAG 2-857 California Institute of Technology 1579**  
CII 158 UM OBSERVATIONS OF THE Z=2.86 IRAS SOURC E  
FSC10214+4724

Period	Obligations	
08/13/1993-08/31/1994	FY93: \$33,600	TOTAL: \$33,600
Prin. Invest.	NASA Tech. Officer	CASE Category
B T SOIFER	ARC/C D LAUGHLIN	11-Astronomy
J ZMUIDZINES	..../C M GILLESPIE	

**NAG 5-722 California Institute of Technology 1580**  
RESEARCH RELATIVE TO THE HEAVY ISOTOPE SPECTROMETER  
TELESCOPE

Period	Obligations	
12/01/1985-02/29/1992	FY93: \$0	TOTAL: \$362,669
Prin. Invest.	NASA Tech. Officer	CASE Category
E C STONE	GSFC/G BULLOCK	11-Astronomy
R A MEWALDT		

**NAG 5-727 California Institute of Technology 1581**  
RESEARCH RELATIVE TO THE CALTECH/IISOTAPE  
SPECTROMETER-IMP

Period	Obligations	
12/22/1985-09/30/1993	FY93: \$57,757	TOTAL: \$435,101
Prin. Invest.	NASA Tech. Officer	CASE Category
E C STONE	GSFC/G BULLOCK	31-Atmos Sci
R A MELWALDT		

**NAG 5-1350 California Institute of Technology 1582**  
NEW SEARCH FOR CHERENT PULSATION FROM LOW MASS

Period	Obligations	
04/11/1990-04/30/1993	FY93: \$0	TOTAL: \$110,702
Prin. Invest.	NASA Tech. Officer	CASE Category
S KULKARNI	GSFC/D WEST	11-Astronomy

**NAG 5-1458 California Institute of Technology 1583**  
LOW-ENERGY GAMMA-RAY EMISSION GALACTIC OBJECTS

Period	Obligations	
08/23/1990-12/31/1993	FY93: \$103,000	TOTAL: \$287,000
Prin. Invest.	NASA Tech. Officer	CASE Category
T A PRINCE	GSFC/J P NORRIS	11-Astronomy
J M GRUNSFELD	..../D A KNIFFEN	
P W GORHAM		

**NASA'S UNIVERSITY PROGRAM  
CALIFORNIA (Continued)**

**NAG 5-1583 California Institute of Technology 1584**  
NEUTRON STARS-SUPERNOVA REMNANTS: AN INTEGRATED A  
*Period Obligations*  
05/24/1991-06/14/1994 FY93: \$10,000 TOTAL: \$88,600  
*Prin. Invest. NASA Tech. Officer CASE Category*  
S R KULKARNI GSFC/R PETRE 11-Astronomy

**NAG 5-1611 California Institute of Technology 1585**  
EXTENSION OF THE WIDE FIELD I PLANETARY CAMERA POS  
T-LAUNCH SCIENCE AND ENGINEERING ACTIVITIES  
*Period Obligations*  
05/23/1991-10/31/1993 FY93: \$2,511,100 TOTAL: \$6,355,300  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J A WESTPHAL GSFC/S SOBIESKI 11-Astronomy

**NAG 5-1687 California Institute of Technology 1586**  
PRECISE DETERMINATION OF THE S-RAY/GAMMA-RAY SOURC E;  
PULSARS AND NEUTRON STARS IN THE GLOBULAR CLUS  
*Period Obligations*  
07/15/1991-07/14/1994 FY93: \$15,000 TOTAL: \$61,999  
*Prin. Invest. NASA Tech. Officer CASE Category*  
T A PRINCE GSFC/R PETRE 11-Astronomy

**NAG 5-1706 California Institute of Technology 1587**  
ISOTROPIC AND ANISOTROPIC X-RAY RADIATION FROM POW ERFUL  
RADIO GALAXIES AND QUASARS  
*Period Obligations*  
07/15/1991-01/14/1993 FY93: \$0 TOTAL: \$10,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
C R LAWRENCE GSFC/R PETRE 11-Astronomy

**NAG 5-1707 California Institute of Technology 1588**  
THE NEAREST AND LEAST LUMINOUS SEYFERT 1 NUCLEUS  
*Period Obligations*  
07/15/1991-01/14/1993 FY93: \$0 TOTAL: \$10,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
W L SARGENT GSFC/R PETRE 11-Astronomy

**NAG 5-1710 California Institute of Technology 1589**  
A SEARCH FOR EVOLUTION OF INFRARED BRIGHT GALAXIES  
*Period Obligations*  
08/01/1991-07/31/1993 FY93: \$0 TOTAL: \$48,199  
*Prin. Invest. NASA Tech. Officer CASE Category*  
G NEUGEBAUER GSFC/D WEST 11-Astronomy

**NAG 5-1716 California Institute of Technology 1590**  
FAR INFRARED EMISSION, GAS AND ULTRALUMINOUS HII REGIONS  
IN M101  
*Period Obligations*  
08/12/1991-08/14/1992 FY93: \$0 TOTAL: \$12,577  
*Prin. Invest. NASA Tech. Officer CASE Category*  
N Z SCOVILLE GSFC/D WEST 11-Astronomy

**NAG 5-1739 California Institute of Technology 1591**  
THE X-RAY VIEW OF OIFFUSE DWARF GALAXIES  
*Period Obligations*  
08/15/1991-08/14/1992 FY93: \$0 TOTAL: \$20,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J R MOULD GSFC/R PETRE 11-Astronomy

**NAG 5-1861 California Institute of Technology 1592**  
X-RAY OBSERVATIONS OF WINDS FROM POWERFUL FAR-INFR  
ARED GALAXIES  
*Period Obligations*  
01/22/1992-01/31/1994 FY93: \$11,336 TOTAL: \$28,336  
*Prin. Invest. NASA Tech. Officer CASE Category*  
T M HECKMAN GSFC/R PETRE 11-Astronomy

**NAG 5-1934 California Institute of Technology 1593**  
X-RAY EMISSION FROM COMPACT STEEP-SPECTRUM QUASARS  
(569)  
*Period Obligations*  
03/12/1992-09/14/1993 FY93: \$0 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
T J PEARSON GSFC/R PETRE 11-Astronomy

**NAG 5-1985 California Institute of Technology 1594**  
THE X-RAY LUMINOSITY OF LOW MASS HYADES STARS  
*Period Obligations*  
05/28/1992-05/31/1994 FY93: \$19,977 TOTAL: \$37,265  
*Prin. Invest. NASA Tech. Officer CASE Category*  
I N REID GSFC/R PETRE 11-Astronomy

**NAG 5-2008 California Institute of Technology 1595**  
CORRELATIVE STUDIES OF THE HARD X-RAY AND OPTICAL/ IR  
PROPERTIES OF BE/X-RAY BINARY PULSARS  
*Period Obligations*  
07/15/1992-07/31/1993 FY93: \$0 TOTAL: \$9,817  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J M GRUNSFELD GSFC/J P NORRIS 11-Astronomy  
..../N WHITE

**NAG 5-2090 California Institute of Technology 1596**  
CORRELATIVE STUDIES OF SOLAR FLARES  
*Period Obligations*  
09/02/1992-09/14/1993 FY93: \$50,396 TOTAL: \$50,396  
*Prin. Invest. NASA Tech. Officer CASE Category*  
H ZIRIN GSFC/J P NORRIS 11-Astronomy  
H WANG ..../N WHITE

**NAG 5-2124 California Institute of Technology 1597**  
X-RAY EMISSION FROM TWO NEARBY MILLISECOND PULSARS  
*Period Obligations*  
10/28/1992-10/31/1993 FY93: \$10,000 TOTAL: \$10,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
S E THORSETT GSFC/R PETRE 11-Astronomy

**NAG 5-2167 California Institute of Technology 1598**  
VARIABILITY OF INVERSE-COMPTON EMISSION FROM THE Q UASAR  
3C 345  
*Period Obligations*  
12/31/1992-12/31/1993 FY93: \$18,000 TOTAL: \$18,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
S C UNWIN GSFC/R PETRE 11-Astronomy

**NAG 5-2168 California Institute of Technology 1599**  
STUDIES OF A FREE-FLYING ASTROMAG MISSION  
*Period Obligations*  
12/31/1992-12/31/1993 FY93: \$19,516 TOTAL: \$19,516  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R A MEWOLDT GSFC/R STRICTMATTER 11-Astronomy

**NASA'S UNIVERSITY PROGRAM  
CALIFORNIA (Continued)**

**NAG 5-2177 California Institute of Technology 1600**  
ELECTRON HEATING AND ACCELERATION IN TWO YOUNG SUPERNOVA REMNANTS: G11.2-0.3 AND 3C397  
*Period* *Obligations*  
01/11/1993-01/14/1994 FY93: \$6,136 TOTAL: \$6,136  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R D BLANDFORD GSFC/R PETRE 11-Astronomy

**NAG 5-2184 California Institute of Technology 1601**  
PARTICIPATION IN THE MARS OBSERVER LASER ALTIMETER (MOLA) TEAM  
*Period* *Obligations*  
02/09/1993-02/14/1994 FY93: \$59,750 TOTAL: \$59,750  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
D O MUHLEMAN GSFC/D E SMITH 11-Astronomy

**NAG 5-2193 California Institute of Technology 1602**  
ROSAT DEEP SURVEY III  
*Period* *Obligations*  
02/04/1993-02/14/1994 FY93: \$6,667 TOTAL: \$6,667  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
M SCHMIDT GSFC/R PETRE 11-Astronomy

**NAG 8-905 California Institute of Technology 1603**  
METALLIC GLASS RESEARCH IN SPACE  
*Period* *Obligations*  
01/01/1992-12/31/1992 FY93: \$43,269 TOTAL: \$192,056  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
W L JOHNSON MSFC/C L DARTY 13-Physics

**NAG 8-937 California Institute of Technology 1604**  
ROTOR FORCE TIP LEAKAGE PHENOMENA  
*Period* *Obligations*  
09/25/1992-06/24/1993 FY93: \$0 TOTAL: \$79,982  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
C E BRENNEN MSFC/H P STINSON 46-Mech Engr  
A J ACOSTA ....J L CANNON  
T K CAUGHEY

**NAG 8-954 California Institute of Technology 1605**  
METALLIC GLASS RESEARCH IN SPACE  
*Period* *Obligations*  
06/07/1993-01/31/1994 FY93: \$152,000 TOTAL: \$152,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
W L JOHNSON MSFC/R C DARTY 13-Physics

**NAG 9-43 California Institute of Technology 1606**  
INVEST LUNAR/PLANETARY MATERIALS  
*Period* *Obligations*  
02/01/1983-01/01/1994 FY93: \$0 TOTAL: \$10,509,672  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
G J WASSERBURG JSC/I D BROWNE 32-Geological Sci

**NAG 9-46 California Institute of Technology 1607**  
STABLE ISOTOPE MEASUREMENTS  
*Period* *Obligations*  
02/01/1983-03/01/1994 FY93: \$0 TOTAL: \$924,465  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
S EPSTEIN JSC/I D BROWNE 12-Chemistry

**NAG 9-94 California Institute of Technology 1608**  
STUDIES OF SOLAR SYSTEM CHEMISTRY  
*Period* *Obligations*  
02/01/1985-02/01/1993 FY93: \$0 TOTAL: \$969,879  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
D S BURNETT JSC/I D BROWNE 47-Materials Engr

**NAG 9-105 California Institute of Technology 1609**  
STUDIES OF PHASE EQUILIBRIA OF METEORITE  
*Period* *Obligations*  
01/01/1985-02/01/1994 FY93: \$0 TOTAL: \$864,309  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
E STOLPER JSC/I D BROWNE 19-Phys Sci, NEC

**NAG 9-185 California Institute of Technology 1610**  
STUDY LUNAR AND METEORITE SAMPLES  
*Period* *Obligations*  
10/01/1986-07/01/1993 FY93: \$0 TOTAL: \$151,002  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
A L ALBEE JSC/I D BROWNE 32-Geological Sci

**NAG 9-570 California Institute of Technology 1611**  
MARS PRECURSOR CONCEPT DEVELOPMENT  
*Period* *Obligations*  
12/30/1991-10/01/1992 FY93: \$0 TOTAL: \$50,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
B C MURRAY JSC/M B DUKE 32-Geological Sci

**NAG 9-702 California Institute of Technology 1612**  
SOLAR WIND SAMPLE RETURN MISSION  
*Period* *Obligations*  
07/30/1993-07/01/1994 FY93: \$88,000 TOTAL: \$88,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
D S BURNETT JSC/D P BLANCHARD 54-Env Biology

**NAGW 107 California Institute of Technology 1613**  
ONOMY  
*Period* *Obligations*  
11/01/1980-11/30/1993 FY93: \$179,000 TOTAL: \$1,397,148  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
T G PHILLIPS HQ/F C GILLET 11-Astronomy  
....E J WEILER

**NAGW 185 California Institute of Technology 1614**  
INTERIORS  
*Period* *Obligations*  
04/01/1981-09/30/1993 FY93: \$77,299 TOTAL: \$907,572  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
D J STEVENSON HQ/J UNDERWOOD 32-Geological Sci  
....J M BOYCE

**NAGW 413 California Institute of Technology 1615**  
REPLY ON A PROPOSAL ENTITLED, PHOTOCHEMICAL MODELING OF TRACE SPECIES IN THE STRATOSPHERE AND MESOSPHERE  
*Period* *Obligations*  
01/19/1983-12/31/1993 FY93: \$95,000 TOTAL: \$1,193,278  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
Y L YUNG HQ/C H JACKMAN 31-Atmos Sci  
T H KRUSE ....D M BUTLER



# **NASA'S UNIVERSITY PROGRAM** **CALIFORNIA (Continued)**

**NAGW 1448 California Institute of Technology 1616**  
 LUNAR AND PLANETARY STUDIES

Period	Obligations	
09/01/1988-11/30/1993	FY93: \$74,497	TOTAL: \$515,497
Prin. Invest.	NASA Tech. Officer	CASE Category
D O MUHLEMAN	HQ/J H RAHE	11-Astronomy

**NAGW 1941 California Institute of Technology 1624**  
 IMPACT AND COLLISIONAL PROCESSES IN THE SOLAR SYSTEM

Period	Obligations	
02/20/1990-09/30/1993	FY93: \$194,600	TOTAL: \$767,600
Prin. Invest.	NASA Tech. Officer	CASE Category
T J AHRENS	HQ/T A MAXWELL	32-Geological Sci

**NAGW 1478 California Institute of Technology 1617**  
 CO-INVESTIGATOR SUPPORT ON INFRARED SPACE OBSERV.

Period	Obligations	
11/01/1988-12/31/1993	FY93: \$39,783	TOTAL: \$170,680
Prin. Invest.	NASA Tech. Officer	CASE Category
A I SARGENT	HQ/G S LEVY	11-Astronomy

**NAGW 1953 California Institute of Technology 1625**  
 NAGW-1953/CALIF INSTITUTE OF TECHNOLOGY/IMPACT CRATERING CALCULATIONS

Period	Obligations	
01/03/1990-09/30/1993	FY93: \$82,800	TOTAL: \$317,019
Prin. Invest.	NASA Tech. Officer	CASE Category
T J AHRENS	HQ/T A MAXWELL	32-Geological Sci

**NAGW 1499 California Institute of Technology 1618**  
 SYNTHETIC APERTURE PLANETARY RADAR ASTRONOMY USING THE VERY

Period	Obligations	
11/17/1988-10/31/1993	FY93: \$50,000	TOTAL: \$199,000
Prin. Invest.	NASA Tech. Officer	CASE Category
D O MUHLEMAN	HQ/J H RAHE	11-Astronomy

**NAGW 1955 California Institute of Technology 1626**  
 NAGW-1955/LASER SPECTROSCOPIC STUDIES OF CARBONACEOUS CLUSTERS AND ULTRAFINE PARTICLES

Period	Obligations	
04/27/1990-11/30/1993	FY93: \$0	TOTAL: \$151,125
Prin. Invest.	NASA Tech. Officer	CASE Category
G A BLAKE	HQ/J D RUMMEL	12-Chemistry

**NAGW 1509 California Institute of Technology 1619**  
 PHOTOCHEMICAL STUDIES OF CHEMISTRY

Period	Obligations	
11/17/1988-12/31/1993	FY93: \$80,000	TOTAL: \$405,495
Prin. Invest.	NASA Tech. Officer	CASE Category
Y L YUNG	HQ/J T BERGSTRALH	11-Astronomy

**NAGW 1956 California Institute of Technology 1627**  
 NAGW-1956/CALIF INSTITUTE OF TECHNOLOGY/DYNAMICS OF PLANETARY ATMOSPHERES

Period	Obligations	
03/16/1990-11/30/1993	FY93: \$95,000	TOTAL: \$375,000
Prin. Invest.	NASA Tech. Officer	CASE Category
A P INGERSOLL	HQ/J T BERGSTRALH	11-Astronomy

**NAGW 1538 California Institute of Technology 1620**  
 PHOTOCHEMICAL AND THERMAL MODELING OF THE EARLY ATMOSPHERE

Period	Obligations	
11/28/1988-11/30/1993	FY93: \$35,280	TOTAL: \$163,616
Prin. Invest.	NASA Tech. Officer	CASE Category
Y L YUNG	HQ/J D RUMMEL	31-Atmos Sci

**NAGW 1972 California Institute of Technology 1628**  
 RESEARCH IN SOLAR MAGNETISM AND SOLAR ACTIVITY

Period	Obligations	
02/15/1990-10/31/1993	FY93: \$350,000	TOTAL: \$1,332,805
Prin. Invest.	NASA Tech. Officer	CASE Category
H ZIRIN	HQ/J D BOHLIN	13-Physics
	....S KANE	

**NAGW 1706 California Institute of Technology 1621**  
 MICROWAVE SPECTROSCOPY OF THE ACTIVE SUN

Period	Obligations	
03/16/1989-09/30/1991	FY93: \$0	TOTAL: \$220,933
Prin. Invest.	NASA Tech. Officer	CASE Category
G HURFORD	HQ/J D BOHLIN	13-Physics
	....S KANE	

**NAGW 2142 California Institute of Technology 1629**  
 THEORY OF DICKS AND THE INFRARED CONTINUUM EMISSION FROM AGN

Period	Obligations	
06/06/1990-10/31/1992	FY93: \$0	TOTAL: \$47,000
Prin. Invest.	NASA Tech. Officer	CASE Category
E S PHINNEY	HQ/G S LEVY	19-Phys Sci, NEC

**NAGW 1852 California Institute of Technology 1622**  
 SOLAR WIND SAMPLE RETURN INSTRUMENT

Period	Obligations	
03/16/1990-09/30/1992	FY93: \$0	TOTAL: \$269,520
Prin. Invest.	NASA Tech. Officer	CASE Category
D S BURNETT	HQ/P R MAHAFFY	32-Geological Sci

**NAGW 2144 California Institute of Technology 1630**  
 PROBING THE RELATIONSHIP BETWEEN ULTRALUMINOUS INFRARED GALAXIES AND QUASARS

Period	Obligations	
05/30/1990-12/31/1993	FY93: \$260,000	TOTAL: \$820,000
Prin. Invest.	NASA Tech. Officer	CASE Category
B T SOIFER	HQ/G S KUTTER	11-Astronomy
	....G R RIEGLER	

**NAGW 1919 California Institute of Technology 1623**  
 HIGH ENERGY ASTROPHYSICS GAMMA-RAY ASTRONOMY RESEARCH AND ANALYSIS PROGRAM

Period	Obligations	
02/20/1990-09/30/1993	FY93: \$825,001	TOTAL: \$3,242,175
Prin. Invest.	NASA Tech. Officer	CASE Category
E C STONE	HQ/W V JONES	11-Astronomy
T A PRINCE	....L J KALUZIENSKI	

**NASA'S UNIVERSITY PROGRAM  
CALIFORNIA (Continued)**

**NAGW 2196 California Institute of Technology 1631**  
NAGW-2196/CALIF INSTITUTE TECHNOLOGY/MILLIMETER  
INTERFEROMETRY OF PROTO-PLANETARY DISKS  
*Period Obligations*  
08/09/1990-10/31/1993 FY93: \$51,362 TOTAL: \$163,724  
*Prin. Invest. NASA Tech. Officer CASE Category*  
A I SARGENT HQ/J A NUTH 11-Astronomy

**NAGW 2204 California Institute of Technology 1632**  
NAGW-2204/CA INST. OF TECHNOLOGY/ATMOSPHERE-SURFAC E  
INTERACTIONS IN MARTIAN PHOTOCHEMISTRY THROUGH  
*Period Obligations*  
03/06/1991-09/30/1993 FY93: \$45,000 TOTAL: \$128,648  
*Prin. Invest. NASA Tech. Officer CASE Category*  
Y L YUNG HQ/J M BOYCE 32-Geological Sci  
....G R RIEGLER

**NAGW 2279 California Institute of Technology 1633**  
IRRADIATION EFFECTS ON EXTRATERRESTRIAL GRAINS  
*Period Obligations*  
02/26/1991-10/31/1993 FY93: \$55,009 TOTAL: \$165,009  
*Prin. Invest. NASA Tech. Officer CASE Category*  
T A TOMBRELLO HQ/J A NUTH 19-Phys Sci, NEC

**NAGW 2297 California Institute of Technology 1634**  
A LABORATORY AND OBSERVATIONAL STUDY OF THE CHEMIC AL  
EVOLUTION OF PROTOSTELLAR NEBULAE  
*Period Obligations*  
05/21/1991-10/31/1993 FY93: \$60,000 TOTAL: \$90,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
G A BLAKE HQ/J A NUTH 19-Phys Sci, NEC

**NAGW 2320 California Institute of Technology 1635**  
EXPERIMENTAL DETERMINATION OF EARLY ATMOSPHERE/MAG MA  
EQUILIBRIA  
*Period Obligations*  
06/13/1991-10/31/1993 FY93: \$30,206 TOTAL: \$90,412  
*Prin. Invest. NASA Tech. Officer CASE Category*  
E STOLPER HQ/J A NUTH 19-Phys Sci, NEC

**NAGW 2353 California Institute of Technology 1636**  
USE OF ACTS FOR REMOTE OPERATION OF THE KECK TELES  
COPE  
*Period Obligations*  
07/02/1991-01/31/1992 FY93: \$0 TOTAL: \$50,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
P MESSINA HQ/D A OLMSTEAD 99-Multi-Discip  
D GOODSTEIN  
G NEUGEBAUER

**NAGW 2362 California Institute of Technology 1637**  
NEPTUNE DATA ANALYSIS PROGRAM MODELING OF ION PROC  
ESSES IN THE ATMOSPHERE OF TRITON AND NEPTUNE  
*Period Obligations*  
05/22/1991-04/30/1994 FY93: \$82,699 TOTAL: \$236,449  
*Prin. Invest. NASA Tech. Officer CASE Category*  
Y L YUNG HQ/W L QUAIDE 19-Phys Sci, NEC

**NAGW 2363 California Institute of Technology 1638**  
NEPTUNE DATA ANALYSIS PROGRAM ATMOSPHERIC DYNAMICS  
FROM IMAGE SEQUENCE  
*Period Obligations*  
03/01/1991-03/31/1994 FY93: \$93,713 TOTAL: \$267,963  
*Prin. Invest. NASA Tech. Officer CASE Category*  
A P INGERSOLL HQ/W L QUAIDE 19-Phys Sci, NEC

**NAGW 2372 California Institute of Technology 1639**  
CONTINUUM MECHANICS OF STARS, DISKS, AND JETS  
*Period Obligations*  
06/03/1991-12/31/1993 FY93: \$97,600 TOTAL: \$273,900  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R D BLANDFORD HQ/G S KUTTER 11-Astronomy  
....G R RIEGLER

**NAGW 2394 California Institute of Technology 1640**  
NEUTRON STARS IN GLOBULAR CLUSTERS  
*Period Obligations*  
03/22/1991-02/28/1994 FY93: \$78,677 TOTAL: \$224,969  
*Prin. Invest. NASA Tech. Officer CASE Category*  
E S PHINNEY HQ/G S KUTTER 11-Astronomy  
....G R RIEGLER

**NAGW 2396 California Institute of Technology 1641**  
MICROWAVE HEAT FLOW AND REGOLITH MAPPER  
*Period Obligations*  
07/15/1991-05/31/1993 FY93: \$0 TOTAL: \$168,307  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D O MUHLEMAN HQ/W L QUAIDE 19-Phys Sci, NEC

**NAGW 2402 California Institute of Technology 1642**  
ANALYSIS OF ENERGETIC PROTON AND ELECTRON DATA IN  
NEPTUNE'S MAGNETOSPHERE  
*Period Obligations*  
06/25/1991-12/31/1992 FY93: \$0 TOTAL: \$178,455  
*Prin. Invest. NASA Tech. Officer CASE Category*  
E C STONE HQ/W QUAIDE 19-Phys Sci, NEC

**NAGW 2439 California Institute of Technology 1643**  
COMETARY NUCLEUS CORE SAMPLING  
*Period Obligations*  
04/29/1991-01/31/1994 FY93: \$84,925 TOTAL: \$243,531  
*Prin. Invest. NASA Tech. Officer CASE Category*  
T J AHRENS HQ/W L QUAIDE 19-Phys Sci, NEC

**NAGW 2491 California Institute of Technology 1644**  
MARS 94 PARTICIPATING SCIENTIST PROGRAM  
*Period Obligations*  
06/13/1991-12/31/1993 FY93: \$55,000 TOTAL: \$125,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
B MURRAY HQ/W QUAIDE 19-Phys Sci, NEC

**NAGW 2496 California Institute of Technology 1645**  
NAGW-2496/CA INSTITUTE TECHNOLOGY/EVOLUTION AND  
STRUCTURE OF TRITON CONSTRAINED BY VOYAGER  
*Period Obligations*  
06/04/1991-12/31/1993 FY93: \$54,321 TOTAL: \$153,604  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D J STEVENSON HQ/W L QUAIDE 19-Phys Sci, NEC

**NASA'S UNIVERSITY PROGRAM  
CALIFORNIA (Continued)**

**NAGW 2576 California Institute of Technology 1646**  
MARS '94 MISSION: CO-INVESTIGATOR PROPOSAL  
*Period* *Obligations*  
08/22/1991-07/31/1994 FY93: \$30,000 TOTAL: \$100,124  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
D O MUHLEMAN HQ/W QUAIDE 19-Phys Sci, NEC

**NAGW 3011 California Institute of Technology 1653**  
ANALYSIS OF SYNTHETIC APERTURE RADAR IMAGES OF MARS, VENUS AND MERCURY  
*Period* *Obligations*  
03/20/1992-02/28/1994 FY93: \$33,000 TOTAL: \$62,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
D O MUHLEMAN HQ/J M BOYCE 32-Geological Sci

**NAGW 2806 California Institute of Technology 1647**  
AN INTERDIGITATED-PIXEL PIN DETECTOR  
*Period* *Obligations*  
01/06/1992-12/31/1993 FY93: \$183,330 TOTAL: \$337,473  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R A MEWALDT HQ/J K ALEXANDER 13-Physics  
...../D A HOLLAND

**NAGW 3012 California Institute of Technology 1654**  
DETECTION AND INTERACTIONS OF ULTRA HEAVY NUCLEI AND COSMIC RAY PROPAGATION  
*Period* *Obligations*  
03/20/1992-02/28/1994 FY93: \$38,109 TOTAL: \$80,218  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
E C STONE HQ/W V JONES 13-Physics  
...../J D BOHLIN

**NAGW 2813 California Institute of Technology 1648**  
A LABORATORY AND ASTROPHYSICAL STUDY OF DRIVEN INFARED EMISSION FROM PAH AND PAH CLUSTERS  
*Period* *Obligations*  
01/02/1992-11/30/1993 FY93: \$36,500 TOTAL: \$73,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
G A BLAKE HQ/L J CAROFF 11-Astronomy

**NAGW 3018 California Institute of Technology 1655**  
INTERACTIONS AMONG CONVECTION, MAGNETIC FIELDS, AND P-MODE OSCILLATIONS IN THE SUN  
*Period* *Obligations*  
04/03/1992-12/31/1993 FY93: \$51,000 TOTAL: \$101,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
P GOLDBREICH HQ/W J WAGNER 13-Physics  
...../J D BOHLIN

**NAGW 2816 California Institute of Technology 1649**  
THEORETICAL PROSPECTS FOR ORBITING VERY LONG BASELINE INTERFEROMETRY  
*Period* *Obligations*  
01/06/1992-11/30/1993 FY93: \$51,000 TOTAL: \$101,102  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R D BLANDFORD HQ/L J CAROFF 11-Astronomy

**NAGW 3040 California Institute of Technology 1656**  
ISOTOPIC, CHEMICAL AND MORPHOLOGICAL STUDY OF INTERSTELLAR GRAINS PRESERVED IN METEORITES  
*Period* *Obligations*  
04/17/1992-04/30/1994 FY93: \$50,000 TOTAL: \$200,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
G J WASSERBURG HQ/J A NUTH 19-Phys Sci, NEC

**NAGW 2897 California Institute of Technology 1650**  
LOW FREQUENCY GRAVITATIONAL-WAVE SOURCES AND THEIR IMPLICATIONS FOR FUTURE NASA MISSIONS  
*Period* *Obligations*  
02/19/1992-12/31/1993 FY93: \$49,000 TOTAL: \$98,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
K S THORNE HQ/R V STACHNIK 11-Astronomy  
...../E J WEILER

**NAGW 3140 California Institute of Technology 1657**  
EVOLUTION OF THE PROTO-SOLAR NEBULA; DISKS IN THE PRE-MAIN SEQUENCE ENVIRONMENT  
*Period* *Obligations*  
07/24/1992-07/31/1994 FY93: \$34,478 TOTAL: \$68,768  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
A I SARGENT HQ/H C BRINTON 11-Astronomy

**NAGW 2920 California Institute of Technology 1651**  
GAMMA RAY EMISSION FROM ACCRETING NEUTRON STAR  
*Period* *Obligations*  
02/26/1992-01/31/1994 FY93: \$50,000 TOTAL: \$100,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R D BLANFORD HQ/L J KALUZIENSKI 11-Astronomy  
...../A N BUNNER

**NAGW 3172 California Institute of Technology 1658**  
NAGW-3172/CA INSTITUTE OF TECHNOLOGY/EARLY EVOLUTION OF THE SOLAR SYSTEM: APERTURE SYNTHESIS IMAGING  
*Period* *Obligations*  
08/14/1992-12/31/1993 FY93: \$0 TOTAL: \$34,290  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
A I SARGENT HQ/J A NUTH 19-Phys Sci, NEC

**NAGW 3005 California Institute of Technology 1652**  
MICROWAVE IMAGING AND SPECTROSCOPY USING THE OWENS VALLEY SOLAR ARRAY  
*Period* *Obligations*  
03/20/1992-11/30/1993 FY93: \$73,000 TOTAL: \$144,400  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
D GARY HQ/W J WAGNER 13-Physics  
...../J D BOHLIN

**NAGW 3207 California Institute of Technology 1659**  
MILLISECOND PULSARS AND PLANETARY SYSTEMS  
*Period* *Obligations*  
09/30/1992-09/30/1993 FY93: \$49,944 TOTAL: \$49,944  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
S R KULKARNI HQ/J A NUTH 19-Phys Sci, NEC

**NASA'S UNIVERSITY PROGRAM  
CALIFORNIA (Continued)**

**NAGW 3253 California Institute of Technology 1660**  
NAGW-3253/CALTECH/THE ORIGIN AND EVOLUTION OF NEUTRON STARS

Period	Obligations	
11/09/1992-04/30/1994	FY93: \$110,122	TOTAL: \$110,122
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
S KULKARNI	HQ/G R RIEGLER	11-Astronomy

**NAGW 3507 California Institute of Technology 1667**  
WATERS ON VENUS EVOLUTION AND ORIGIN AS CONSTRAINED BY PRESENT DATA

Period	Obligations	
04/09/1993-03/31/1994	FY93: \$65,000	TOTAL: \$65,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
Y L YUNG	HQ/J T BERGSTRALH	32-Geological Sci

**NAGW 3297 California Institute of Technology 1661**  
NAGW-3297/CALTECH/DEVELOPMENT AND APPLICATION OF THE ION MICROPROBE FOR ANALYSIS OF EXTRATERRESTRIAL

Period	Obligations	
12/10/1992-11/14/1993	FY93: \$360,000	TOTAL: \$360,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
G J WASSERBURG	HQ/G C BRINTON	32-Geological Sci

**NAGW 3533 California Institute of Technology 1668**  
EXPERIMENTAL STUDIES OF PHASE EQUILIBRIA OF METEORITES AND PLANETARY INTERIORS

Period	Obligations	
04/29/1993-02/28/1994	FY93: \$150,360	TOTAL: \$150,360
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
E STOLPER	HQ/H C BRINTON	32-Geological Sci

**NAGW 3303 California Institute of Technology 1662**  
SUBMILLIMETER FOURIER TRANSFORM SPECTROSCOPY OF PLANETARY ATMOSPHERES

Period	Obligations	
01/06/1993-11/30/1993	FY93: \$45,000	TOTAL: \$45,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
E SARABYN	HQ/H C BRINTON	11-Astronomy

**NAGW 3534 California Institute of Technology 1669**  
NAGW-3534/CALTECH/IGNEOUS ORIGINS FOR THE SODIUM CLOUD OF IO

Period	Obligations	
04/21/1993-04/30/1994	FY93: \$43,259	TOTAL: \$43,259
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
D S BURNETT	HQ/H C BRINTON	32-Geological Sci

**NAGW 3329 California Institute of Technology 1663**  
APPLICATION OF STABLE ISOTOPE MEASUREMENTS TO THE STUDY OF THE ORIGIN AND HISTORY OF METEORITES

Period	Obligations	
12/31/1992-12/14/1993	FY93: \$70,513	TOTAL: \$70,513
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
H P TAYLOR	HQ/C H BRINTON	32-Geological Sci

**NAGW 3592 California Institute of Technology 1670**  
EXPER. AND ANAL. STUD. OF SOLAR SYSTEM CHEMISTRY

Period	Obligations	
05/14/1993-01/31/1994	FY93: \$122,570	TOTAL: \$122,570
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
D S BURNETT	HQ/H C BRINTON	32-Geological Sci

**NAGW 3337 California Institute of Technology 1664**  
NAGW-3337/CA INST. TECHNOLOGY/GEOCHEMICAL AND ISOTOPE INVESTIGATIONS OF LUNAR AND PLANETARY MATERIALS

Period	Obligations	
01/26/1993-11/14/1993	FY93: \$828,100	TOTAL: \$828,100
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
G J WASSERBURG	HQ/H C BRINTON	32-Geological Sci

**NAGW 3780 California Institute of Technology 1671**  
THE 7TH INTERNATIONAL SYMPOSIUM ON CI COMPOUNDS

Period	Obligations	
09/23/1993-06/30/1994	FY93: \$5,000	TOTAL: \$5,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
M E LIDSTROM	HQ/D E WICKLAND	39-Env Sci, NEC
	....A C JANETOS	

**NAGW 3393 California Institute of Technology 1665**  
THE PHYS. ST. OF THE VENUS SUR. AS REVEALED FROM MAGELLAN RADIO EMISSION AND REFLECTION DATA

Period	Obligations	
03/09/1993-03/14/1994	FY93: \$59,279	TOTAL: \$59,279
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
D O MUHLEMAN	HQ/J T BERGSTRALH	32-Geological Sci

**NAS 5-27269 California Institute of Technology 1672**  
DEFINITION PHASE STUDY FOR A PHOTOMETRIC FILTERGRAPH FOR THE SOLAR OPTICAL TELESCOPE

Period	Obligations	
05/26/1982-07/01/1992	FY93: \$0	TOTAL: \$2,302,556
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
H ZIRIN	GSFC/M COMBERIATE	31-Atmos Sci

**NAGW 3491 California Institute of Technology 1666**  
VENUS EVOLUTION AND STRUCTURE USING MAGELLAN DATA

Period	Obligations	
03/27/1993-03/14/1994	FY93: \$69,497	TOTAL: \$69,497
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
D J STEVENSON	HQ/J T BERGSTRALH	32-Geological Sci

**NAS 5-30792 California Institute of Technology 1673**  
DATA ANALYSIS SOFTWARE FOR A GAMMA-RAY IMAGING DEVICE

Period	Obligations	
03/26/1990-09/30/1993	FY93: \$30,000	TOTAL: \$317,937
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
G HURFORD	GSFC/L ORWIG	22-Computer Science

**NAS 5-31348 California Institute of Technology 1674**  
APPLIED INFORMATION STUDY

Period	Obligations	
06/19/1991-06/30/1993	FY93: \$0	TOTAL: \$55,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
S DJORGOVSKI	GSFC/H BURRITT	22-Computer Science
	....J BREDEKAMP	

# **NASA'S UNIVERSITY PROGRAM**

## **CALIFORNIA (Continued)**

**NAS 5-31459 California Institute of Technology 1675**  
 PHASE 8 DEFINITION STUDY OF THE ADVANCED COMPOSITION  
 EXPLORER (ACE) SCIENCE PAYLOAD  
*Period Obligations*  
 04/22/1991-05/31/1993 FY93: \$3,525,906 TOTAL: \$5,725,906  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 E STONE GSFC/J LAUDADIO 13-Physics

**NGT 00-030-075 California Institute of Technology 1676**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
 08/30/1991-08/31/1994 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S O PEHKONEN HQ/D M BUTLER 33-Oceanography  
 M R HOFFMANN ....G S WILSON

**NGT 00-030-135 California Institute of Technology 1677**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
 10/21/1992-08/31/1993 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M F GERSTELL HQ/G ASRAR 31-Atmos Sci  
 ....D M BUTLER

**NGT 00-050-429 California Institute of Technology 1678**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 08/01/1989-06/30/1992 FY93: \$0 TOTAL: \$62,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 T G PHILLIPS HQ/F C OWENS 13-Physics

**NGT 00-050-471 California Institute of Technology 1679**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 08/08/1989-06/30/1992 FY93: \$0 TOTAL: \$62,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D S BURNETT HQ/F C OWENS 32-Geological Sci

**NGT 00-050-501 California Institute of Technology 1680**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 08/14/1989-09/31/1992 FY93: \$0 TOTAL: \$62,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 E M STOLPER HQ/F C OWENS 12-Chemistry

**NGT 00-050-527 California Institute of Technology 1681**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 09/12/1989-09/19/1992 FY93: \$0 TOTAL: \$62,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 B C MURRY HQ/F C OWENS 32-Geological Sci

**NGT 00-050-528 California Institute of Technology 1682**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 09/13/1989-08/31/1992 FY93: \$8,667 TOTAL: \$53,333  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 T K GAUGHEY HQ/F C OWENS 46-Mech Engr

**NGT 00-050-574 California Institute of Technology 1683**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 09/10/1990-08/31/1992 FY93: \$0 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J W BURDICK HQ/F C OWENS 46-Mech Engr

**NGT 00-050-576 California Institute of Technology 1684**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 07/09/1990-06/30/1993 FY93: \$22,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A INGERSOLL HQ/F C OWENS 46-Mech Engr

**NGT 00-050-672 California Institute of Technology 1685**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 07/24/1990-07/31/1993 FY93: \$0 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 E M STOLPER HQ/F C OWENS 32-Geological Sci

**NGT 00-050-726 California Institute of Technology 1686**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 06/13/1991-06/30/1993 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 Y L YUNG HQ/F C OWENS 19-Phys Sci, NEC

**NGT 00-050-727 California Institute of Technology 1687**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 10/28/1991-09/30/1994 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M OKUMURA JPL/H ASHKENAS 12-Chemistry

**NGT 00-050-742 California Institute of Technology 1688**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 08/01/1991-06/30/1994 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J C DOYLE HQ/F C OWENS 45-Elec Engr

**NGT 00-050-800 California Institute of Technology 1689**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 08/16/1991-09/30/1994 FY93: \$44,000 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 E M STOLPER HQ/F C OWENS 12-Chemistry

**NGT 00-050-804 California Institute of Technology 1690**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 06/10/1991-06/30/1994 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 T A PRINCE HQ/F C OWENS 11-Astronomy

**NASA'S UNIVERSITY PROGRAM  
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**NGT 00-050-818 California Institute of Technology 1691**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
08/16/1991-08/31/1994 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
K G LIBBRECHT HQ/J ALEXANDER 11-Astronomy

**NGT 00-050-890 California Institute of Technology 1692**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
09/17/1992-09/30/1994 FY93: \$22,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
M OKUMURA JPL/H ASHKENAS 12-Chemistry

**NGT 00-050-891 California Institute of Technology 1693**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
05/05/1992-06/30/1993 FY93: \$22,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
B C MURRAY JPL/H ASHKENAS 11-Astronomy

**NGT 00-050-893 California Institute of Technology 1694**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
05/04/1992-06/30/1993 FY93: \$22,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
G NEUGEBAVER JPL/A ASHKENAS 13-Physics

**NGT 00-051-071 California Institute of Technology 1695**  
GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
05/24/1993-06/30/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D STEVENSON HQ/D HOLLAND 11-Astronomy

**NGT 00-051-084 California Institute of Technology 1696**  
GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
06/01/1993-09/30/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D BURNETT HQ/D HOLLAND 12-Chemistry

**NGT 00-051-156 California Institute of Technology 1697**  
GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
08/04/1993-09/30/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R MEWALDT HQ/D HOLLAND 13-Physics

**NGT 00-051-184 California Institute of Technology 1698**  
GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
09/20/1993-09/30/1996 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
T A PRINCE MSFC/F SIX 13-Physics

**NGT 00-060-009 California Institute of Technology 1699**  
NASA SUMMER UNDERGRADUATE RESEARCH PROGRAM  
*Period Obligations*  
03/09/1993-03/31/1994 FY93: \$50,000 TOTAL: \$50,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
C MERKEL HQ/A S MCGEE 49-Engr, NEC  
...../E T SCHWARTZ

**NGT 00-070-265 California Institute of Technology 1700**  
NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED MINORITY FOCUS PROGRAM  
*Period Obligations*  
05/04/1992-06/30/1994 FY93: \$22,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D RUFLEDGE JPL/H ASHKENAS 45-Elec Engr

**NGT 00-070-287 California Institute of Technology 1701**  
NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED MINORITY FOCUS PROGRAM  
*Period Obligations*  
11/02/1992-09/30/1994 FY93: \$44,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R A HREWALDS HQ/J K ALEXANDER 13-Physics

**NGT 00-070-335 California Institute of Technology 1702**  
NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED MINORITY FOCUS PROGRAM  
*Period Obligations*  
07/01/1993-06/30/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J HOPEFIELD HQ/D J RUSSELL 99-Multi-Discip

**NGT 00-090-175 California Institute of Technology 1703**  
UNDERGRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
09/10/1993-08/14/1994 FY93: \$12,000 TOTAL: \$12,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
E ZUKOSKIN HQ/D K RUSSELL 99-Multi-Discip

**NGT 5-3790 California Institute of Technology 1704**  
SUMMER FACULTY FELLOWSHIP PROGRAM -TRAINING GRANT  
*Period Obligations*  
01/01/1979-03/31/1994 FY93: \$417,035 TOTAL: \$4,365,748  
*Prin. Invest. NASA Tech. Officer CASE Category*  
A L ALBEE HQ/A S MCGEE 49-Engr, NEC  
...../E T SCHWARTZ

**NSG-1483 California Institute of Technology 1705**  
LOW SPEED IMPACT DAMAGE ON COMPOSITE MATERIALS  
*Period Obligations*  
01/04/1978-11/14/1993 FY93: \$44,999 TOTAL: \$898,543  
*Prin. Invest. NASA Tech. Officer CASE Category*  
W G KNAUSS LARC/J H STARNES 41-Aero Engr  
C D BABCOCK

**NAG 2-743 California Polytechnic State U-San Luis 1706**  
MODIFICATION OF ACSYNT AIRCRAFT PRELIMINARY DESIGN COMPUTER PROGRAM  
*Period Obligations*  
12/02/1991-09/30/1993 FY93: \$0 TOTAL: \$41,661  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D SANDLIN ARC/J J SAMUELS 41-Aero Engr  
...../A S HAHN

**NASA'S UNIVERSITY PROGRAM  
CALIFORNIA (Continued)**

**NAG 2-766 California Polytechnic State U-San Luis 1707**  
AERODYNAMIC ANALYSIS OF HYPERSONIC WAVE-RIDER AIRCRAFT CONFIGURATIONS

Period	Obligations	
03/03/1992-09/30/1993	FY93: \$0	TOTAL: \$41,661
Prin. Invest.	NASA Tech. Officer	CASE Category
D R SANDLIN	ARC/J V BOWLES	41-Aero Engr
D PESSIN	....T GALLOWAY	

**NCA 2-779 California Polytechnic State U-San Luis 1714**  
OPTIMIZING PIEZOELECTRIC SENSORS/ACTUATORS FOR VIBRATION DAMPING

Period	Obligations	
02/05/1993-11/30/1993	FY93: \$20,869	TOTAL: \$20,869
Prin. Invest.	NASA Tech. Officer	CASE Category
F A KOLKAILAH	ARC/M W KEHOE	41-Aero Engr

**NAG 2-778 California Polytechnic State U-San Luis 1708**  
EVALUATION OF DUAL FLOW THRUST VECTOR NOZZLES WITH EXHAUST STREAM IMPINGEMENT

Period	Obligations	
04/10/1992-09/30/1993	FY93: \$12,000	TOTAL: \$47,380
Prin. Invest.	NASA Tech. Officer	CASE Category
T W CARPENTER	ARC/R J RAY	41-Aero Engr
S DOBBINS	....A H BOWERS	

**NCA 2-811 California Polytechnic State U-San Luis 1715**  
AN EXPERIMENTAL INVESTIGATION OF THE EFFECT OF UPPER SURFACE BLOWING ON DYNAMIC STALL

Period	Obligations	
04/21/1993-02/28/1994	FY93: \$11,724	TOTAL: \$11,724
Prin. Invest.	NASA Tech. Officer	CASE Category
J TSO	ARC/K MCALISTER	41-Aero Engr

**NAG 2-833 California Polytechnic State U-San Luis 1709**  
INTUITIVE GENERIC DISPLAYS FOR REAL TIME SELECTION OF AERODYNAMIC COEFFICIENTS DURING FLIGHT SIMULATION

Period	Obligations	
04/15/1993-12/14/1994	FY93: \$45,491	TOTAL: \$45,491
Prin. Invest.	NASA Tech. Officer	CASE Category
D BIEZAD	ARC/L J SCHILLING	29-Math/Computer, NEC
	....M B EVANS	

**NCA 2-816 California Polytechnic State U-San Luis 1716**  
AN EXPERIMENTAL INVESTIGATION OF REDUCTION OF AERODYNAMICALLY GENERATED MICROPHONE SELF-NOISE

Period	Obligations	
05/12/1993-08/31/1994	FY93: \$14,000	TOTAL: \$14,000
Prin. Invest.	NASA Tech. Officer	CASE Category
J TSO	ARC/P T SODERMAN	41-Aero Engr

**NCA 2-626 California Polytechnic State U-San Luis 1710**  
JET BLOWING CONTROL FOR CHINED FOREBODIES

Period	Obligations	
06/24/1991-06/30/1993	FY93: \$0	TOTAL: \$62,627
Prin. Invest.	NASA Tech. Officer	CASE Category
R M CUMMINGS	ARC/L B SCHIFF	41-Aero Engr

**NCA 2-836 California Polytechnic State U-San Luis 1717**  
A NUMERICAL INVESTIGATION OF THE EFFECT OF HIGHER HARMONIC CONTROL OF BLADE-VORTEX INTERACTION NOISE

Period	Obligations	
08/25/1993-01/15/1994	FY93: \$8,800	TOTAL: \$8,800
Prin. Invest.	NASA Tech. Officer	CASE Category
J TSO	ARC/C TUNG	41-Aero Engr

**NCA 2-649 California Polytechnic State U-San Luis 1711**  
DETERMINING STRUCTURAL FLAWS USING MODAL ANALYSIS

Period	Obligations	
08/23/1991-09/29/1992	FY93: \$0	TOTAL: \$25,000
Prin. Invest.	NASA Tech. Officer	CASE Category
F A KOLKAILAH	ARC/M W KEHOE	41-Aero Engr

**NCC 2-684 California Polytechnic State U-San Luis 1718**  
NUMERICAL INVESTIGATION OF A TRAPPED VORTEX ON A WING

Period	Obligations	
07/13/1990-06/14/1992	FY93: \$57	TOTAL: \$46,391
Prin. Invest.	NASA Tech. Officer	CASE Category
R M CUMMINGS	ARC/J C ROSS	41-Aero Engr

**NCA 2-694 California Polytechnic State U-San Luis 1712**  
EXPERIMENTAL STUDY OF COMPOSITE MATERIAL CHARACTERISTICS AT ELEVATED TEMPERATURES

Period	Obligations	
03/09/1992-09/15/1992	FY93: \$0	TOTAL: \$16,622
Prin. Invest.	NASA Tech. Officer	CASE Category
F A KOLKAILAH	ARC/M W KEHOE	41-Aero Engr

**NCC 2-701 California Polytechnic State U-San Luis 1719**  
DEVELOPMENT OF EXCRESCENCE TOLERANCE CRITERIA FOR LAMINAR FLOW WINGS AT LOW SUBSONIC SPEED

Period	Obligations	
03/26/1991-12/31/1992	FY93: \$118	TOTAL: \$40,621
Prin. Invest.	NASA Tech. Officer	CASE Category
D R SANDLIN	ARC/F A ZUNIGA	41-Aero Engr
N T SAIKI	....D F FISHER	

**NCA 2-722 California Polytechnic State U-San Luis 1713**  
A NUMERICAL INVESTIGATION OF AN UNSTEADY AIRFOIL WITH A SLAT

Period	Obligations	
06/12/1992-09/15/1993	FY93: \$5,253	TOTAL: \$13,653
Prin. Invest.	NASA Tech. Officer	CASE Category
J TSO	ARC/C TUNG	41-Aero Engr

**NCC 2-711 California Polytechnic State U-San Luis 1720**  
LOW BANDWIDTH ROBUST CONTROLLERS FOR FLIGHT

Period	Obligations	
04/09/1991-12/31/1992	FY93: \$0	TOTAL: \$43,112
Prin. Invest.	NASA Tech. Officer	CASE Category
D J BIEZAD	ARC/G B GILYARD	41-Aero Engr

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**NCC 2-730 California Polytechnic State U-San Luis 1721**  
RESEARCH ON TWO-FENCE VORTEX TRAPPING OF SOME DELTA WINGS

Period	Obligations	
08/13/1991-01/14/1993	FY93: \$0	TOTAL: \$32,148
Prin. Invest.	NASA Tech. Officer	CASE Category
J TSO	ARC/J C ROSS	41-Aero Engr

**NCC 2-775 California Polytechnic State U-San Luis 1728**  
GLOBAL POSITIONING SYSTEM FEASIBILITY STUDY FOR HELICOPTER APPROACHES

Period	Obligations	
10/19/1992-01/14/1994	FY93: \$41,812	TOTAL: \$41,812
Prin. Invest.	NASA Tech. Officer	CASE Category
D J BIEZAD	ARC/H N SWENSON	41-Aero Engr
D N KAUFMANN		
W B PATTERSON		

**NCC 2-731 California Polytechnic State U-San Luis 1722**  
STUDY OF A JET IN A CROSSFLOW

Period	Obligations	
08/13/1991-05/31/1993	FY93: \$2,500	TOTAL: \$42,554
Prin. Invest.	NASA Tech. Officer	CASE Category
J TSO	ARC/R J MARGASON	41-Aero Engr

**NCC 2-800 California Polytechnic State U-San Luis 1729**  
RAPID ASSESSMENT OF AGILITY FOR CONCEPTUAL DESIGN SYNTHESIS

Period	Obligations	
05/20/1993-06/30/1994	FY93: \$39,739	TOTAL: \$39,739
Prin. Invest.	NASA Tech. Officer	CASE Category
D J BEIZAD	ARC/G C HILL	41-Aero Engr

**NCC 2-734 California Polytechnic State U-San Luis 1723**  
REDUCED GRAVITY CONTAMINATION CONTROL EXPERIMENT

Period	Obligations	
08/21/1991-04/30/1993	FY93: \$7,743	TOTAL: \$37,367
Prin. Invest.	NASA Tech. Officer	CASE Category
W B PATTERSON	ARC/J W JENNER	31-Atmos Sci
E L FELDHAUS		

**NCC 2-813 California Polytechnic State U-San Luis 1730**  
NUMERICAL DESIGN OF ADVANCED MULTI-ELEMENT AIRFOILS

Period	Obligations	
07/16/1993-11/30/1993	FY93: \$18,000	TOTAL: \$18,000
Prin. Invest.	NASA Tech. Officer	CASE Category
R M CUMMINGS	ARC/J R ROSS	41-Aero Engr
D L MATHIAS		

**NCC 2-748 California Polytechnic State U-San Luis 1724**  
EVALUATION OF SINGLE AND DUAL FLOW THRUST VECTOR NOZZLES WITH POST EXIT VANES

Period	Obligations	
03/03/1992-12/31/1993	FY93: \$45,990	TOTAL: \$78,609
Prin. Invest.	NASA Tech. Officer	CASE Category
T W CARPENTER	ARC/A H BOWERS	41-Aero Engr
M BOVARKOVICH		
M DORIS		

**NGT 00-070-228 California Polytechnic State U-San Luis 1731**  
NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED MINORITY FOCUS PROGRAM

Period	Obligations	
05/21/1991-06/30/1993	FY93: \$0	TOTAL: \$44,000
Prin. Invest.	NASA Tech. Officer	CASE Category
R M COMMINGS	HQ/F C OWENS	41-Aero Engr

**NCC 2-751 California Polytechnic State U-San Luis 1725**  
ROBUST CROSSFEED DESIGN FOR HOVERING ROTORCRAFT

Period	Obligations	
03/03/1992-07/31/1993	FY93: \$0	TOTAL: \$36,660
Prin. Invest.	NASA Tech. Officer	CASE Category
D BIEZAD	ARC/M B TISCHLER	41-Aero Engr

**NAGW 715 California St. Polytechnic U-Pomona 1732**  
PERIGLACIAL/GLACIAL ANALOGS FOR MARTIAN LANDFORMS

Period	Obligations	
01/01/1985-12/31/1992	FY93: \$2,813	TOTAL: \$30,511
Prin. Invest.	NASA Tech. Officer	CASE Category
L A ROSSBACHER	HQ/D H SCOTT	32-Geological Sci
....J M BOYCE		

**NCC 2-754 California Polytechnic State U-San Luis 1726**  
NUMERICAL PREDICTION OF TRANSITION ON THE F-16 WING AT SUPERSONIC SPEEDS

Period	Obligations	
04/17/1992-07/31/1992	FY93: \$62	TOTAL: \$6,279
Prin. Invest.	NASA Tech. Officer	CASE Category
R CUMMINGS	ARC/J FLORES	41-Aero Engr
J GARCIA	....T A EDWARDS	

**NCC 2-529 California State Univ.- hayward 1733**  
ANALYSIS OF THE VISUAL FRAMEWORK EFFECT

Period	Obligations	
02/01/1988-06/30/1994	FY93: \$49,977	TOTAL: \$318,526
Prin. Invest.	NASA Tech. Officer	CASE Category
A E STOPER	ARC/M M COHEN	69-Psych, NEC

**NCC 2-761 California Polytechnic State U-San Luis 1727**  
NUMERICAL INVESTIGATION OF MULTI-ELEMENT AIRFOILS

Period	Obligations	
05/21/1992-06/30/1993	FY93: \$24,264	TOTAL: \$44,264
Prin. Invest.	NASA Tech. Officer	CASE Category
R M CUMMINGS	ARC/J C ROSS	41-Aero Engr
P C CARRANNATO		

**NGT 00-070-274 California State Univ.- hayward 1734**  
NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED MINORITY FOCUS PROGRAM

Period	Obligations	
06/26/1992-06/30/1993	FY93: \$0	TOTAL: \$22,000
Prin. Invest.	NASA Tech. Officer	CASE Category
S B OPPENBEIMER	ARC/M MOORE	12-Chemistry



**NASA'S UNIVERSITY PROGRAM  
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**NAS 3-26127 California State University - Chico 1735**  
SERVICES TO OPERATE NASA LEWIS RESEARCH CENTER

Period	Obligations	
11/01/1990-10/31/1995	FY93: \$244,000	TOTAL: \$686,174
Prin. Invest.	NASA Tech. Officer	CASE Category
J WRIGHT	LERC/D CONRAD	99-Multi-Discip
S GAUL	....C DEMONGEOT	

**NAG 1-1455 California State University - Los Angeles 1742**  
SOLAR EAGLE II PROJECT NLPN 92-826

Period	Obligations	
09/15/1992-11/30/1993	FY93: \$0	TOTAL: \$12,500
Prin. Invest.	NASA Tech. Officer	CASE Category
D ROBERTO	LARC/R L YANG	46-Mech Engr

**NCA 2-815 California State University - Chico 1736**  
ASSESSMENT OF PEST AND DISEASE INHTENSTIY ON PHYLLOXERATED GRAPEVINES IN NAPA COUNTY AND THE EFFECT..

Period	Obligations	
05/21/1993-05/31/1994	FY93: \$33,571	TOTAL: \$33,571
Prin. Invest.	NASA Tech. Officer	CASE Category
J R BURLEIGH	ARC/J S SALUTE	56-Medical Sciences
M W BALDY		
R W BALDY		

**NAGW 3707 California State University - Los Angeles 1743**  
PREDICTING PHOTOSYNTHETIC FLUXES FROM SPECTRAL REFLECTANCE OF LEAVES AND CANOPIES

Period	Obligations	
08/19/1993-06/30/1996	FY93: \$69,938	TOTAL: \$69,938
Prin. Invest.	NASA Tech. Officer	CASE Category
J A GAMON	HQ/D E WICKLAND	39-Env Sci, NEC
	....A C JANETOS	

**NAG 2-802 California State University - Fresno 1737**  
REMOTE SENSING AS AN AID TO HYDROLOGICAL ASSESSMENT AND LANDSCAPE MAPPING

Period	Obligations	
09/16/1992-05/31/1993	FY93: \$89,100	TOTAL: \$178,200
Prin. Invest.	NASA Tech. Officer	CASE Category
J F PARIS	ARC/J S SALUTE	54-Env Biology

**NCC 1-174 California State University - Los Angeles 1744**  
COMPUTATIONAL FLUID DYNAMICS VALIDATION OF TRANSONIC HIGH REYNOLD'S NUMBER

Period	Obligations	
04/09/1993-03/31/1994	FY93: \$51,136	TOTAL: \$51,136
Prin. Invest.	NASA Tech. Officer	CASE Category
C C WU	LARC/R A WAHLS	41-Aero Engr
	....J A AL-SADI	

**NAG 3-1100 California State University - Fullerton 1738**  
REDUNDANCY/COST ANALYSIS

Period	Obligations	
12/14/1989-01/07/1994	FY93: \$14,921	TOTAL: \$102,273
Prin. Invest.	NASA Tech. Officer	CASE Category
R C SUICH	LERC/R L PATTERSON	49-Engr, NEC

**NGT 00-090-051 California State University - Los Angeles 1745**  
UNDERGRADUATE STUDENT RESEARCHERS PRG

Period	Obligations	
08/22/1991-08/31/1994	FY93: \$36,300	TOTAL: \$93,177
Prin. Invest.	NASA Tech. Officer	CASE Category
M RANDLE	HQ/B WHITE	49-Engr, NEC

**NAGW 2515 California State University - Fullerton 1739**  
METEORITE COMPACTION AGES AND THE SEARCH FOR EVIDENCE FOR AN EARLY ACTIVE (T-TAURI) SUN

Period	Obligations	
02/26/1991-10/31/1993	FY93: \$36,500	TOTAL: \$108,300
Prin. Invest.	NASA Tech. Officer	CASE Category
D S WOLLUM	HQ/J A NUTH	19-Phys Sci, NEC

**NGT 00-090-064 California State University - Los Angeles 1746**  
A PROGRAM TO IMPROVE TRANSFER RATES OF UNDERREPRESENTED MINORITY PRE-ENGINEERING STUDENTS FROM CA

Period	Obligations	
08/21/1992-08/14/1993	FY93: \$0	TOTAL: \$122,000
Prin. Invest.	NASA Tech. Officer	CASE Category
R LANDIS	HQ/B WHITE	49-Engr, NEC
	....S MASSENBERG	

**NAG 2-726 California State University - Long Beach 1740**  
FIFTH SYMPOSIUM ON NUMERICAL AND PHYSICAL ASPECTS OF AERODYNAMICS FLOWS

Period	Obligations	
08/14/1991-06/30/1992	FY93: \$1	TOTAL: \$9,899
Prin. Invest.	NASA Tech. Officer	CASE Category
T CEBECI	ARC/P KUTLER	41-Aero Engr
	....T C EDWARDS	

**NAGW 2453 California State University - Northridge 1747**  
STUDY OF PHYSICS IN OPEN REGIONS

Period	Obligations	
04/03/1991-01/31/1992	FY93: \$0	TOTAL: \$10,000
Prin. Invest.	NASA Tech. Officer	CASE Category
G A CHAPMAN	HQ/W WAGNER	13-Physics
	....K LANG	

**NAG 3-1050 California State University - Long Beach 1741**  
THE CALCULATION OF FLOW OVER SWEPT WINGS WITH ICE

Period	Obligations	
05/30/1989-03/01/1994	FY93: \$94,932	TOTAL: \$455,438
Prin. Invest.	NASA Tech. Officer	CASE Category
T CEBECI	LERC/C S BIDWELL	41-Aero Engr

**NAGW 2770 California State University - Northridge 1748**  
A DETAILED COMPARISON OF THE SMM/ACRIM TOTAL SOLAR IRRADIANCE TO PRECISE GROUND-BASED PHOTOMETRY

Period	Obligations	
12/06/1991-10/31/1993	FY93: \$0	TOTAL: \$39,814
Prin. Invest.	NASA Tech. Officer	CASE Category
G A CHAPMAN	HQ/W J WAGNER	13-Physics
	....K LANG	

**NASA'S UNIVERSITY PROGRAM  
CALIFORNIA (Continued)**

**NAGW 3017 California State University - Northridge 1749**  
NAGW-3017/CA STATE UNIV/PHOTOMETRIC OBSERVATIONS IN  
SUPPORT OF ACRIM 2 ON THE UARS MISSION

Period	Obligations	
04/17/1992-03/31/1994	FY93: \$73,210	TOTAL: \$144,289
Prin. Invest.	NASA Tech. Officer	CASE Category
G A CHAPMAN	HQ/W J WAGNER	11-Astronomy
	....J D BOHLIN	

**NAGW 3335 D-Q University 1757**  
AMERICAN INDIAN YOUNG NASA SCHOLARS PROGRAM IN MAT  
HEMATICS AND SCIENCE

Period	Obligations	
02/02/1993-02/14/1994	FY93: \$125,542	TOTAL: \$125,542
Prin. Invest.	NASA Tech. Officer	CASE Category
A LOUFAS	ARC/A HATCH	99-Multi-Discip
	....B WHITE	

**NCA 2-790 California State University - Northridge 1750**  
THREE DIMENSIONAL FLOW ANALYSIS OF A SCRAMJET COMB  
USTOR USING FINITE TECHNIQUES AND UNSTRUCTURED GRID

Period	Obligations	
02/04/1993-12/31/1993	FY93: \$25,736	TOTAL: \$25,736
Prin. Invest.	NASA Tech. Officer	CASE Category
P K RUSSELL	ARC/K GUPTA	41-Aero Engr

**NGT 00-090-054 D-Q University 1758**  
UNDERGRADUATE STUDENT RESEARCHERS PRG

Period	Obligations	
09/25/1991-08/31/1994	FY93: \$36,000	TOTAL: \$104,830
Prin. Invest.	NASA Tech. Officer	CASE Category
A LOUFAS	HQ/B L WHITE	49-Engr, NEC

**NCA 5-116 California State University - Northridge 1751**  
ACCESS TO PROFESSIONAL TECHNICAL CAREERS

Period	Obligations	
02/18/1993-02/28/1994	FY93: \$74,994	TOTAL: \$74,994
Prin. Invest.	NASA Tech. Officer	CASE Category
D MILLER	GSFC/M HARTMAN	22-Computer Science

**NCA 2-724 Foothill College 1759**  
INTERNSHIP PLAN FOR SCIENTIFIC TECHNICIANS AND BUS INESS  
CAREER TECHNICIANS

Period	Obligations	
07/01/1992-06/30/1993	FY93: \$286,008	TOTAL: \$683,610
Prin. Invest.	NASA Tech. Officer	CASE Category
M CONWAY	ARC/M LANE	99-Multi-Discip

**NCC 2-821 California State University - Northridge 1752**  
COMPARISON OF SIMULATION AND FLIGHT DATA USING A NEW  
DYNAMIC WIND TUNNEL DATA TECHNIQUE

Period	Obligations	
08/19/1993-10/31/1993	FY93: \$3,600	TOTAL: \$3,600
Prin. Invest.	NASA Tech. Officer	CASE Category
S D SCHWARTZ	ARC/A H BOWERS	41-Aero Engr
J R DAKER		

**NCA 2-725 Foothill College 1760**  
INDUSTRIAL CRAFTS

Period	Obligations	
07/01/1992-06/30/1993	FY93: \$441,233	TOTAL: \$588,311
Prin. Invest.	NASA Tech. Officer	CASE Category
M CONWAY	ARC/S S LONGCHAMPS	99-Multi-Discip

**NGT 00-090-032 California State University - Northridge 1753**  
AN INTER-INSTITUTIONAL ENG INEERING RETENTION PROGRAM  
FOR ETHNIC MINORITIES

Period	Obligations	
08/01/1990-06/14/1994	FY93: \$166,684	TOTAL: \$1,046,582
Prin. Invest.	NASA Tech. Officer	CASE Category
C MORNING	HQ/M S MARGOLIS	49-Engr, NEC

**NGT 2-1001 Foothill College 1761**  
SCIENTIFIC-TECHNICAL AND BUSINESS CAREERS TRAINING G  
RANT

Period	Obligations	
07/07/1993-05/31/1994	FY93: \$783,349	TOTAL: \$783,349
Prin. Invest.	NASA Tech. Officer	CASE Category
M CONWAY	ARC/M A LANE	99-Multi-Discip
	....J M MCCULLOUGH	

**NGT 00-090-055 California State University - Northridge 1754**  
UNDERGRADUATE STUDENT RESEARCHERS PRG

Period	Obligations	
09/26/1991-08/31/1994	FY93: \$24,000	TOTAL: \$67,860
Prin. Invest.	NASA Tech. Officer	CASE Category
M MACIAS	HQ/B WHITE	49-Engr, NEC
C MORNING		

**NCC 2-342 Foothill-De Anza Com College System 1762**  
**Off**  
OPTIMIZATION OF KNOWLEDGE BASED SYSTEMS AND  
EXPERTSYSTEM DEVELOPMENT TOOLS

Period	Obligations	
01/01/1985-12/31/1992	FY93: \$127,276	TOTAL: \$1,344,561
Prin. Invest.	NASA Tech. Officer	CASE Category
P YASUDA	ARC/D B MCKELLAR	22-Computer Science
	....H LUM	

**NGT 00-090-111 California State University - Northridge 1755**  
UNDERGRADUATE STUDENT RESEARCHERS PROGRAM (UMF)

Period	Obligations	
09/24/1992-08/19/1994	FY93: \$24,000	TOTAL: \$24,000
Prin. Invest.	NASA Tech. Officer	CASE Category
S OPPENHEIMER	HQ/D K RUSSELL	99-Multi-Discip

**NCC 2-785 Foothill-De Anza Com College System 1763**  
**Off**  
ADVANCED AUTOMATED COMPUTER SYSTEM METHODOLOGIES

Period	Obligations	
03/05/1993-12/31/1993	FY93: \$228,470	TOTAL: \$228,470
Prin. Invest.	NASA Tech. Officer	CASE Category
P YASUDA	ARC/D B MCKELLAR	22-Computer Science
J HARRIS		

**NAG 5-2010 Claremont Mckenna College 1756**  
STUDY OF BURST DETECTIONS BY BATSE

Period	Obligations	
07/08/1992-07/14/1994	FY93: \$65,388	TOTAL: \$92,979
Prin. Invest.	NASA Tech. Officer	CASE Category
J C HIGDON	GSFC/J P NORRIS	11-Astronomy
	....N WHITE	

**NASA'S UNIVERSITY PROGRAM  
CALIFORNIA (Continued)**

**NGT 2-1002 Foothill-De Anza Com College System 1764**  
Off  
INDUSTRIAL CRAFTS TRAINING GRANT  
Period Obligations  
07/07/1993-10/31/1993 FY93: \$100,000 TOTAL: \$100,000  
Prin. Invest. NASA Tech. Officer CASE Category  
M CONWAY ARC/S S LONGCHAMPS 99-Multi-Discip  
...../P J HARO

**NCA 2-758 Harvey Mudd College 1765**  
OPTIMIZATION OF THERMAL CONTROL AND AIR LIVING EFFICIENCY  
WITHIN A CHAMBER IN ABSENCE OF GRAVITY  
Period Obligations  
10/29/1992-06/15/1993 FY93: \$33,000 TOTAL: \$33,000  
Prin. Invest. NASA Tech. Officer CASE Category  
H WILLIAMS ARC/M L HINES 46-Mech Engr

**NAG 8-275 Loyola Marymount University 1766**  
JOVE  
Period Obligations  
11/04/1992-05/31/1993 FY93: \$39,000 TOTAL: \$39,000  
Prin. Invest. NASA Tech. Officer CASE Category  
J SANNY MSFC/F SIX 99-Multi-Discip  
S SCHECK  
C WEEKS

**NGT 00-090-141 Loyola Marymount University 1767**  
UNDERGRADUATE STUDENT RESEARCHERS PROGRAM  
Period Obligations  
09/29/1992-08/14/1993 FY93: \$12,000 TOTAL: \$12,000  
Prin. Invest. NASA Tech. Officer CASE Category  
A SMULDERS HQ/D K RUSSELL 99-Multi-Discip

**NCC 2-735 National Hispanic University 1768**  
CIENTIFICOS PROGRAM - PREPARING FUTURE SCIENTISTS  
Period Obligations  
09/03/1991-08/31/1992 FY93: \$0 TOTAL: \$101,630  
Prin. Invest. NASA Tech. Officer CASE Category  
R D PARKER ARC/E L BUGNA 99-Multi-Discip  
...../A HATCH

**NGT 00-090-067 National Hispanic University 1769**  
CIENTIFICOS PROJECT - FUTURE HISPANIC SCIENTISTS PROJECT  
Period Obligations  
08/28/1992-08/31/1993 FY93: \$0 TOTAL: \$99,732  
Prin. Invest. NASA Tech. Officer CASE Category  
R PARKER ARC/E L BUGNA 99-Multi-Discip  
...../J VALENTINE

**NAG 5-911 San Diego State University 1770**  
MEASUREMENT OF EVAPOTRANSPIRATION WITH COMBINED  
REFLECTIVE THERMAL INFRARED OBSERVATIONS  
Period Obligations  
06/15/1987-08/31/1993 FY93: \$3,951 TOTAL: \$334,517  
Prin. Invest. NASA Tech. Officer CASE Category  
A S HOPE GSFC/B CHOUDHURY 39-Env Sci, NEC  
...../F HALL

**NAG 5-2064 San Diego State University 1771**  
TIME RESOLVED OBSERVATIONS OF THE LIKELY DQ HERCULIS  
SYSTEM, 1H0709-360  
Period Obligations  
08/05/1992-08/14/1993 FY93: \$0 TOTAL: \$17,016  
Prin. Invest. NASA Tech. Officer CASE Category  
A W SHAFTER GSFC/R PETRE 11-Astronomy

**NAGW 319 San Diego State University 1772**  
PHOTOABSORPTION AND PHOTODISSOCIATION OF MOLECULES  
IMPORTANT IN THE INTERSTELLAR MEDIUM.  
Period Obligations  
05/15/1982-01/14/1993 FY93: \$0 TOTAL: \$661,194  
Prin. Invest. NASA Tech. Officer CASE Category  
L LEE HQ/F C GILLET 11-Astronomy  
...../E J WEILER

**NAGW 1849 San Diego State University 1773**  
MECHANISM AND CONTROL OF SHOOT GRAVITROPISM  
Period Obligations  
09/28/1989-12/31/1991 FY93: \$0 TOTAL: \$95,000  
Prin. Invest. NASA Tech. Officer CASE Category  
D RAYLE HQ/T HALSTEAD 51-Biological Sci

**NAGW 2031 San Diego State University 1774**  
NAGW-2031/SAN DIEGO STATE UNIV/CANOPY REFLECTANCE  
MODELLING OF SEMIARID VEGETATION  
Period Obligations  
04/27/1990-06/30/1993 FY93: \$0 TOTAL: \$147,756  
Prin. Invest. NASA Tech. Officer CASE Category  
J FRANKLIN HQ/G ASRAR 39-Env Sci, NEC  
...../T J PIEPER

**NAGW 2154 San Diego State University 1775**  
CLASSIFICATION OF BIO-OPTICAL PROVINCES IN THE NORTH  
ATLANTIC DURING JGOFS  
Period Obligations  
08/31/1990-12/31/1993 FY93: \$55,000 TOTAL: \$240,765  
Prin. Invest. NASA Tech. Officer CASE Category  
C C TREES HQ/M R LEWIS 33-Oceanography  
...../W S WILSON

**NAGW 3494 San Diego State University 1776**  
SEA.PIG., PRI.PROD. AND SED.OF ORG.MATT.IN THE GULF OF  
CALI.,AND THE ELNINO-SOUTH. OSCILL. CYCLE  
Period Obligations  
04/12/1993-12/31/1993 FY93: \$10,000 TOTAL: \$10,000  
Prin. Invest. NASA Tech. Officer CASE Category  
J L MUELLER HQ/D E WICKLAND 39-Env Sci, NEC  
...../A C JANETOS

**NAG10-87 San Diego State University 1777**  
MECHANISM AND CONTROL OF SHOOT GRAVITROPISM  
Period Obligations  
06/01/1991-01/31/1993 FY93: \$285 TOTAL: \$49,715  
Prin. Invest. NASA Tech. Officer CASE Category  
D L RAYLE KSC/W M KNOTT 51-Biological Sci

# NASA'S UNIVERSITY PROGRAM CALIFORNIA (Continued)

**NAS 5-31753 San Diego State University 1778**  
SEAWIFS VALIDATION SUPPORT  
*Period Obligations*  
06/26/1992-06/25/1995 FY93: \$232,100 TOTAL: \$506,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J L MUELLER GSFC/C MCCLAIN 33-Oceanography

**NAS13-373 San Diego State University 1779**  
UPDATE VECTOR-CODED GEOGRAPHIC INFO SYS USING REMOTELY SENSED DATA  
*Period Obligations*  
09/30/1988-01/31/1992 FY93: \$12 TOTAL: \$525,662  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D A SHAW SSC/C L HILL 39-Env Sci, NEC

**NCA 2-786 San Diego State University 1780**  
STUDY OF ORGANIZED STRUCTURES IN THE POST-STALL FLOW OVER WINGS  
*Period Obligations*  
02/05/1993-02/14/1995 FY93: \$36,522 TOTAL: \$36,522  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J KATZ ARC/J ROSS 41-Aero Engr

**NCC 2-596 San Diego State University 1781**  
APPLICATIONS OF PANEL METHODS TO V/STOL AND SLENDER BODY AERODYNAMICS  
*Period Obligations*  
03/13/1989-04/30/1993 FY93: \$0 TOTAL: \$139,997  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J KATZ ARC/J C ROSS 41-Aero Engr  
...../V R CORSIGLIA

**NGT 00-030-091 San Diego State University 1782**  
NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
09/17/1991-08/31/1992 FY93: \$0 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
P W LEADLEY HQ/D M BUTLER 39-Env Sci, NEC  
J REYNOLDS ...../G S WILSON

**NGT 00-030-134 San Diego State University 1783**  
NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
09/12/1992-08/31/1993 FY93: \$0 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
P W LEADLEY HQ/G ASRAR 39-Env Sci, NEC  
J REYNOLDS ...../D M BUTLER

**NAG 5-1661 San Francisco State University 1784**  
TIME-RESOLVED OBSERVATIONS OF THE NEW DQ HERBINAR Y V795 HER (=PG1711 + 336)  
*Period Obligations*  
06/27/1991-06/30/1992 FY93: \$0 TOTAL: \$18,987  
*Prin. Invest. NASA Tech. Officer CASE Category*  
A W SHAFTER GSFC/R PETRE 11-Astronomy

**NAGW 2212 San Francisco State University 1785**  
DETERMINATION OF THE OPTICAL CONSTANTS OF HYDRATES, CARBONATES, SULFATES, AND NITRATES  
*Period Obligations*  
10/09/1990-06/30/1994 FY93: \$28,000 TOTAL: \$84,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J B ORENBERG HQ/T A MAXWELL 32-Geological Sci

**NAGW 3182 San Francisco State University 1786**  
NAGW-3182/SAN FRANCISCO STATE UNIV/A NEXT-GENERATION SEARCH FOR EXTRA-SOLAR PLANETS  
*Period Obligations*  
08/28/1992-09/30/1993 FY93: \$0 TOTAL: \$163,194  
*Prin. Invest. NASA Tech. Officer CASE Category*  
G W MARCY HQ/J K ALEXANDER 11-Astronomy  
...../D A HOLLAND

**NCA 2-639 San Francisco State University 1787**  
EFFECTS OF HYDROGEN ON CANDIDATE MATERIALS FOR THE NATIONAL AEROSPACE PLANE  
*Period Obligations*  
07/22/1991-07/31/1993 FY93: \$0 TOTAL: \$80,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
M M ABO-ELL-ATA ARC/H NELSON 46-Mech Engr

**NCA 2-712 San Francisco State University 1788**  
CHARACTERIZATION OF MARS SOIL ANALOG MINERALS AND MINERAL MIXTURES BY DIFFERENT THERMAL ANALYSIS  
*Period Obligations*  
04/20/1992-01/31/1994 FY93: \$0 TOTAL: \$39,999  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J ORENBERG ARC/G CARLE 12-Chemistry

**NCA 2-764 San Francisco State University 1789**  
DETERMINATION OF POLAR STRATOSPHERIC CLOUD ONSET OVER ANTARCTICA USING CLOUD TOP TEMPERATURE .....  
*Period Obligations*  
11/17/1992-11/30/1994 FY93: \$20,000 TOTAL: \$20,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
O GARCIA ARC/S HIPSKIND 31-Atmos Sci  
T FOSCHI  
J MONTEVERDI

**NCA 2-801 San Francisco State University 1790**  
CONCEPTUAL DESIGN OF A HUMAN HABITAT FOR THE 52' DIAMETER CENTRIFUGE AT NASA AMES RESEARCH CENTER  
*Period Obligations*  
04/02/1993-06/30/1993 FY93: \$10,000 TOTAL: \$10,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
P PFAELZER ARC/G MULENBURG 42-Astro Engr  
N OWEN

**NCA 2-808 San Francisco State University 1791**  
NETWORK REQUIREMENTS TO SUPPORT DISTRIBUTED COMPUTER VISUALIZATION AND CENTRAL STORAGE  
*Period Obligations*  
04/14/1993-12/31/1993 FY93: \$16,492 TOTAL: \$16,492  
*Prin. Invest. NASA Tech. Officer CASE Category*  
H SHAHNASSER ARC/P GRAMS 22-Computer Science

**NASA'S UNIVERSITY PROGRAM  
CALIFORNIA (Continued)**

**NCA 2-835 San Francisco State University 1792**  
PRELIMINARY DESIGN OF HUMAN HABITAT AREAS FOR THE 52'  
DIAMETER CENTRIFUGE AT NASA-AMES RESEARCH CTR  
*Period* *Obligations*  
08/16/1993-01/31/1994 FY93: \$14,983 TOTAL: \$14,983  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
P PFAELZER ARC/G M MULENBURG 46-Mech Engr

**NAG 2-713 San Jose State University 1799**  
BIOCHEMICAL AND IMMUNOLOGICAL ANALYSIS OF RAT MUSCLE  
ENZYMES IN NASA SLS-1 MISSION  
*Period* *Obligations*  
06/07/1991-12/31/1992 FY93: \$2 TOTAL: \$105,757  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
L S YENGOYAN ARC/W E HINDS 51-Biological Sci

**NCC 2-672 San Francisco State University 1793**  
THE SPECTROSCOPY AND REACTIVITY OF MINERAL ANALOGS OF  
THE MARTIAN SOIL  
*Period* *Obligations*  
06/07/1990-09/30/1992 FY93: \$0 TOTAL: \$151,496  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J B ORENBURG ARC/G C CARLE 59-Life Sci, NEC  
T L ROUSH  
A BANIN

**NAG 2-848 San Jose State University 1800**  
DEVELOPMENT OF PROCESSING TECHNIQUES FOR ADVANCED  
THERMAL PROTECTION MATERIALS  
*Period* *Obligations*  
06/17/1993-05/31/1994 FY93: \$66,669 TOTAL: \$66,669  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
G SELVADURAY ARC/D B LEISER 47-Materials Engr

**NCC 2-727 San Francisco State University 1794**  
PROPERTIES OF THE MARTIAN SOIL: ANALYSIS OF AVAILABLE  
SPECTROSCOPIC DATASETS  
*Period* *Obligations*  
06/30/1991-06/30/1993 FY93: \$0 TOTAL: \$103,395  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J MONTEVERDI ARC/J B POLLACK 59-Life Sci, NEC  
T ROUSH

**NAG 5-1273 San Jose State University 1801**  
RESEARCH RELATIVE TO GAMMA-RAY EMISSION FROM THE LUNAR  
SYSTEM  
*Period* *Obligations*  
08/22/1989-10/31/1992 FY93: \$0 TOTAL: \$38,198  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
P A ENGLERT GSFC/J I TROMBKA 19-Phys Sci, NEC

**NCC 2-808 San Francisco State University 1795**  
THE BIOGENIC ELEMENTS IN MARS SOIL  
*Period* *Obligations*  
07/01/1993-12/31/1993 FY93: \$77,981 TOTAL: \$77,981  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J B ORENBURG ARC/G C CARLE 59-Life Sci, NEC

**NAG 5-2354 San Jose State University 1802**  
GAMMA-RAY EMITTERS PRODUCED BY HIGH ENERGY CHARGED  
PARTICLES  
*Period* *Obligations*  
08/25/1993-09/14/1994 FY93: \$14,900 TOTAL: \$14,900  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
P ENGLERT GSFC/J I TROMBKA 11-Astronomy  
...../S R FLOYD

**NCC 2-815 San Francisco State University 1796**  
MODELING THE REFLECTANCE SPECTRA OF CONDENSED VOLATILE  
TILES ON PLANETARY SURFACES  
*Period* *Obligations*  
08/06/1993-06/30/1994 FY93: \$39,547 TOTAL: \$39,547  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
T L ROUSH ARC/J B POLLACK 11-Astronomy  
J P MONTEVERDI ...../D P CRUIKSHANK

**NAG 9-232 San Jose State University 1803**  
STUDY: COSMOGENIC NUCLIDE PRODUCTION IN METEORITES  
*Period* *Obligations*  
08/01/1987-11/01/1992 FY93: \$5,133 TOTAL: \$195,086  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
P A ENGLERT JSC/I D BROWNE 32-Geological Sci

**NAG 2-537 San Jose State University 1797**  
INCORPORATION OF METEOROLOGICAL INFORMATION INTO AIR  
TRAFFIC CONTROL AUTOMATION  
*Period* *Obligations*  
09/01/1988-12/31/1992 FY93: \$32,681 TOTAL: \$497,591  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
W F NEDELL ARC/T J DAVIS 41-Aero Engr  
...../H ERZBERGER

**NAGW 2112 San Jose State University 1804**  
ANALYSIS OF POLAR STRATOSPHERIC CLOUD FORMATION MECHANISMS  
*Period* *Obligations*  
05/14/1990-12/31/1992 FY93: \$90 TOTAL: \$89,921  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
P HAMILL HQ/R D MCPETERS 31-Atmos Sci  
...../M J PRATHER

**NAG 2-681 San Jose State University 1798**  
CORRELATION STUDIES OF PIONEER VENUS IMAGERY OBTAINED  
FROM PV EXPERIMENTS W/NEAR-IR IMAGERY .....  
*Period* *Obligations*  
10/26/1990-09/30/1992 FY93: \$0 TOTAL: \$52,380  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
A B RAGENT ARC/L E LASHER 11-Astronomy  
...../R O FIMMEL

**NAGW 3525 San Jose State University 1805**  
THEORETICAL STUDIES OF POLAR STRATOSPHERIC CLOUDS AND  
THE BACKGROUND STRATOSPHERE SULFATE AEROSOL  
*Period* *Obligations*  
04/15/1993-02/28/1994 FY93: \$37,713 TOTAL: \$37,713  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
P HAMILL HQ/J A KAYE 31-Atmos Sci  
...../R E MURPHY

**NASA'S UNIVERSITY PROGRAM  
CALIFORNIA (Continued)**

**NAGW 3656 San Jose State University 1806**  
RADIO OCCULTATION INVESTIGATION OF THE RINGS  
*Period Obligations*  
06/17/1993-05/31/1994 FY93: \$51,000 TOTAL: \$51,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
E A MAROUF HQ/J M BOYCE 32-Geological Sci

**NCA 2-683 San Jose State University 1813**  
AN EXPERIMENTAL STUDY OF SPANWISC BLOWING ON DELTA WINGS  
*Period Obligations*  
02/04/1992-08/31/1993 FY93: \$0 TOTAL: \$23,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
N MOURTOS ARC/D RIDDLE 41-Aero Engr

**NAS 5-31746 San Jose State University 1807**  
ACQUISITION OF OPTICAL MOORING AND SHIPBOARD SUBMERSIBLE RADIOMETER SYSTEM  
*Period Obligations*  
05/12/1992-05/11/1995 FY93: \$794,000 TOTAL: \$1,996,900  
*Prin. Invest. NASA Tech. Officer CASE Category*  
W BROENKOW GSFC/C MCCLAIN 33-Oceanography

**NCA 2-710 San Jose State University 1814**  
PARTICIPATION IN SPADE CAMPAIGN  
*Period Obligations*  
04/27/1992-05/31/1994 FY93: \$5,000 TOTAL: \$10,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
P HAMILL ARC/B TOON 13-Physics

**NCA 2-178 San Jose State University 1808**  
A COLLEGE WORK-STUDY PROGRAM FOR TTHE PURPOSE OF CINFORCING THE EDUCATIONAL PROGRAM OR VOCATIONAL GO  
*Period Obligations*  
11/01/1986-09/30/1993 FY93: \$42,899 TOTAL: \$322,919  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R SHOEMAKER ARC/S STANLEY 99-Multi-Discip

**NCA 2-720 San Jose State University 1815**  
NMR ANALYSIS AND BIOFILM STUDY OF SURFACE MODIFIED POLYMERS  
*Period Obligations*  
05/26/1992-03/15/1993 FY93: \$19,392 TOTAL: \$39,986  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J J PESEK ARC/M GOLUB 12-Chemistry

**NCA 2-295 San Jose State University 1809**  
RESEARCH AND DEVELOPMENT PROGRAM  
*Period Obligations*  
04/15/1988-04/30/1994 FY93: \$2,193,582 TOTAL: \$10,426,407  
*Prin. Invest. NASA Tech. Officer CASE Category*  
N BUSSANI ARC/R L PIKE 99-Multi-Discip  
....D CUNNINGHAM

**NCA 2-735 San Jose State University 1816**  
EVOLUTION OF GRAVITATIONALLY UNSTABLE PROTOSTELLAR DISK  
*Period Obligations*  
07/20/1992-08/25/1993 FY93: \$0 TOTAL: \$9,085  
*Prin. Invest. NASA Tech. Officer CASE Category*  
L TOMLEY ARC/P CASSEN 11-Astronomy

**NCA 2-555 San Jose State University 1810**  
JOINT USE OF RESOURCES FOR OPERATION OF THE NASA- AMES UNIV. CONSORTIUM OFFICE  
*Period Obligations*  
11/30/1990-09/30/1994 FY93: \$158,000 TOTAL: \$474,051  
*Prin. Invest. NASA Tech. Officer CASE Category*  
S K GIBSON ARC/L A MILOV 99-Multi-Discip  
A C CHU

**NCA 2-740 San Jose State University 1817**  
DETERMINATION OF DUST OPTICAL DEPTH AND PHOTOMETRI C PROPERTIES FROM VIKING LANDER IMAGES  
*Period Obligations*  
07/22/1992-08/09/1994 FY93: \$40,000 TOTAL: \$80,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
A F BRIDGER ARC/J B POLLACK 31-Atmos Sci

**NCA 2-651 San Jose State University 1811**  
PYROLYSIS OF CARBON-CONTAINING COMPOUNDS  
*Period Obligations*  
08/26/1991-08/25/1993 FY93: \$24,936 TOTAL: \$79,936  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J F BECKER ARC/J VALENTIN 13-Physics

**NCA 2-741 San Jose State University 1818**  
A K-DISTRIBUTION METHOD FOR COMPUTING ATMOSPHERIC RADIATIVE TRANSFER FOR CLIMATE STUDIES  
*Period Obligations*  
08/05/1992-08/31/1994 FY93: \$0 TOTAL: \$39,930  
*Prin. Invest. NASA Tech. Officer CASE Category*  
P HAMILL ARC/B TOON 31-Atmos Sci

**NCA 2-677 San Jose State University 1812**  
ANALYSIS OF BOUNDARY LAYER TRANSITION FOR SWEPT WING DESIGN  
*Period Obligations*  
01/21/1991-03/31/1993 FY93: \$0 TOTAL: \$33,273  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R V WESTPHAL ARC/R A KENNELLY 41-Aero Engr

**NCA 2-744 San Jose State University 1819**  
ATMOSPHERIC SOUNDINGS INSUPPORT OF THE STRATOSPHER EIC, AEROSOLS AND DYNAMICS EXPEDITION (SPADE)  
*Period Obligations*  
08/13/1992-08/31/1993 FY93: \$0 TOTAL: \$15,412  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J GOODMAN ARC/S HIPSKIND 31-Atmos Sci

**NASA'S UNIVERSITY PROGRAM  
CALIFORNIA (Continued)**

**NCA 2-756 San Jose State University 1820**  
JOINT USE OF RESOURCES FOR OPERATION OF THE AMES A  
EROSPACE ENCOUNTER  
*Period Obligations*  
10/07/1992-09/30/1993 FY93: \$177,600 TOTAL: \$177,600  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J BEARD ARC/T B CLAUSEN 99-Multi-Discip  
J W BOYD

**NCC 2-3 San Jose State University 1827**  
STUDY OF FIBER MATERIALS USED IN TEMPERATURE RESISTANT  
FIBER REINFORCED COMPOSITES  
*Period Obligations*  
06/01/1979-05/31/1994 FY93: \$35,000 TOTAL: \$662,376  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R N ANDERSON ARC/S R RICCIETELLO 47-Materials Engr  
....H GOLDSTEIN

**NCA 2-784 San Jose State University 1821**  
A STUDY OF GRAVITY WAVES IN THE ATMOSPHERE OF VENU S  
USING PIONEER VENUS ATMOSPHERIC PROBE DATA  
*Period Obligations*  
02/01/1993-08/31/1994 FY93: \$28,653 TOTAL: \$28,653  
*Prin. Invest. NASA Tech. Officer CASE Category*  
A BRIDGER ARC/R E YOUNG 11-Astronomy

**NCC 2-153 San Jose State University 1828**  
ENERGETIC CONTRIBUTIONS OF THE MINERAL PHASE TO  
PREBIOTIC CHEMISTRY ON PLANETARY SURFACES  
*Period Obligations*  
07/01/1981-09/30/1991 FY93: \$237 TOTAL: \$726,759  
*Prin. Invest. NASA Tech. Officer CASE Category*  
A C LING ARC/S CHANG 12-Chemistry  
L M COYNE ....J LAWLESS

**NCA 2-785 San Jose State University 1822**  
HYDROSTATIC MOUNTAIN WAQVES IN THE MARTIAN ATMOSPHE  
ERE: A THEORETICAL STUDY  
*Period Obligations*  
02/05/1993-08/31/1994 FY93: \$32,000 TOTAL: \$32,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
A BRIDGER ARC/R E YOUNG 11-Astronomy

**NCC 2-168 San Jose State University 1829**  
EXPERIMENTAL STUDIES OF THE DISTRIBUTION OF MINOR  
CONSTITUENTS IN THE ATMOSPHERE  
*Period Obligations*  
01/01/1982-12/31/1993 FY93: \$198,760 TOTAL: \$1,526,760  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J GOODMAN ARC/S S WEGENER 31-Atmos Sci

**NCA 2-809 San Jose State University 1823**  
ANALYSIS OF BOUNDARY LAYER TRANSITION FOR SWEEP WI NG  
DESIGN - SECOND PHASE  
*Period Obligations*  
04/14/1993-05/27/1994 FY93: \$39,306 TOTAL: \$39,306  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R V WESTPHAL ARC/R A KENNELLY JR. 41-Aero Engr

**NCC 2-195 San Jose State University 1830**  
DEVELOPMENT OF ANALYTICAL TECHIQUES FOR THE ANALYSIS  
OF FIBER MATERIALS  
*Period Obligations*  
08/01/1982-05/31/1993 FY93: \$0 TOTAL: \$691,904  
*Prin. Invest. NASA Tech. Officer CASE Category*  
G SELVADURAY ARC/S R RICCIETELLO 47-Materials Engr  
....D LEISER

**NCA 2-814 San Jose State University 1824**  
WATER VAPOR TRANSPORT AND SOURCE IDENTIFICATION IN THE  
MARTIAN ATMOSPHERE  
*Period Obligations*  
05/12/1993-01/21/1995 FY93: \$31,607 TOTAL: \$31,607  
*Prin. Invest. NASA Tech. Officer CASE Category*  
A F BRIDGER ARC/R M HABERLE 11-Astronomy

**NCC 2-211 San Jose State University 1831**  
TROPOSPHERIC - STRATOSPHERIC MEASUREMENT STUDIES  
*Period Obligations*  
09/22/1987-10/30/1994 FY93: \$152,993 TOTAL: \$908,769  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J GOODMAN ARC/K R CHAN 31-Atmos Sci  
S W BOWEN ....S G SCOTT

**NCA 2-817 San Jose State University 1825**  
INVESTIGATION OF MARTIAN ATMOSPHERIC DYNAMICAL RES  
PONSE TO GLOBAL DUST STORMS  
*Period Obligations*  
05/21/1993-07/21/1994 FY93: \$39,889 TOTAL: \$39,889  
*Prin. Invest. NASA Tech. Officer CASE Category*  
A F BRIDGER ARC/J B POLLACK 31-Atmos Sci

**NCC 2-315 San Jose State University 1832**  
AN INVESTIGATION OF CLEAR AIR TURBULENCE INCIDENTS  
INVOLVING WIDE BODIED AIRCRAFT  
*Period Obligations*  
11/01/1987-10/14/1993 FY93: \$29,537 TOTAL: \$256,885  
*Prin. Invest. NASA Tech. Officer CASE Category*  
P F LESTER ARC/R E BACH 31-Atmos Sci

**NCA 2-834 San Jose State University 1826**  
MEASUREMENT OF CARBON ISOTOPES IN CALCITE  
*Period Obligations*  
08/16/1993-08/15/1995 FY93: \$40,000 TOTAL: \$40,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J BECKER ARC/J VALENTIN 31-Atmos Sci

**NCC 2-327 San Jose State University 1833**  
AERO-SPACE HUMAN FACTORS  
*Period Obligations*  
10/01/1984-01/31/1994 FY93: \$1,193,318 TOTAL: \$7,386,127  
*Prin. Invest. NASA Tech. Officer CASE Category*  
K JORDAN ARC/R K DISMUKES 69-Psych, NEC

**NASA'S UNIVERSITY PROGRAM  
CALIFORNIA (Continued)**

**NCC 2-430 San Jose State University 1834**  
FLOW FIELD GRAPHICS  
*Period Obligations*  
10/01/1987-01/31/1993 FY93: \$27,111 TOTAL: \$593,576  
*Prin. Invest. NASA Tech. Officer CASE Category*  
A A BORJA ARC/G S DEIWERT 41-Aero Engr  
D DESAUTEL ....W J FEIEREISEN

**NCC 2-665 San Jose State University 1841**  
RADIATIVE TRANSFER MODELING  
*Period Obligations*  
04/20/1990-03/31/1994 FY93: \$87,307 TOTAL: \$339,721  
*Prin. Invest. NASA Tech. Officer CASE Category*  
P HAMILL ARC/O B TOON 31-Atmos Sci  
S A KINNE

**NCC 2-449 San Jose State University 1835**  
NEURAL CONNECTIVITY AND IMMUNOCYTOCHEMICAL  
STUDIESANATOMICAL SITES RELATED TO NAUSEOGENIC AND  
EMETIC  
*Period Obligations*  
12/01/1986-05/31/1994 FY93: \$119,927 TOTAL: \$742,238  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R A FOX ARC/M L CORCORAN 51-Biological Sci  
F D'AMILIO ....N G DAUNTON

**NCC 2-687 San Jose State University 1842**  
OBSERVATIONAL STUDY OF SOLAR SYSTEM PLASMAS  
*Period Obligations*  
07/31/1990-07/14/1994 FY93: \$109,910 TOTAL: \$420,023  
*Prin. Invest. NASA Tech. Officer CASE Category*  
P HAMILL ARC/A BARNES 11-Astronomy  
P R GAZIS

**NCC 2-466 San Jose State University 1836**  
STUDIES OF PLANETARY ATMOSPHERES ASSOCIATED WITH  
EXPERIMENTS ON THE GALILEO JUPITER PROBE EXPERIMEN  
*Period Obligations*  
03/01/1987-12/31/1993 FY93: \$91,742 TOTAL: \$646,190  
*Prin. Invest. NASA Tech. Officer CASE Category*  
B RAGENT ARC/R E YOUNG 19-Phys Sci, NEC  
J GOODMAN ....J SPERANS

**NCC 2-703 San Jose State University 1843**  
PATTERN BARNIV RECOGNITION AND SIGNAL PROCESSING BY  
NEURAL NETWORK  
*Period Obligations*  
02/01/1991-12/31/1993 FY93: \$43,057 TOTAL: \$129,235  
*Prin. Invest. NASA Tech. Officer CASE Category*  
Y BARAM ARC/Y BARNIV 29-Math/Computer, NEC  
J C WANG

**NCC 2-471 San Jose State University 1837**  
STUDIES OF THE ATMOSPHERE OF VENUS AND WORK ON  
THEATMOSPHERIC STRUCTURE EXPERIMENT OF THE GALILEO JU  
*Period Obligations*  
04/01/1987-06/30/1994 FY93: \$91,592 TOTAL: \$677,015  
*Prin. Invest. NASA Tech. Officer CASE Category*  
P LESTER ARC/R E YOUNG 31-Atmos Sci  
A SEIFF

**NCC 2-723 San Jose State University 1844**  
BEHAVIORAL AND PHYSIOLOGICAL EFFECTS OF HINDLIBM  
UNLOADING IN RATS  
*Period Obligations*  
07/26/1991-03/31/1994 FY93: \$62,036 TOTAL: \$310,424  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R A FOX ARC/M L CORCORAN 51-Biological Sci  
F D'AMELIO ....N G DAUNTON  
L F ENG

**NCC 2-527 San Jose State University 1838**  
STUDIES OF PLANETARYATMOSPHERES ASSOCIATED WITH  
THPIONEER VENUS ORBITER AND GALILEO PROBE TO JUPITER  
*Period Obligations*  
01/15/1988-01/14/1994 FY93: \$71,564 TOTAL: \$453,647  
*Prin. Invest. NASA Tech. Officer CASE Category*  
L COLIN ARC/C M WINGET 19-Phys Sci, NEC  
P F LESTER ....R O FIMMEL

**NCC 2-756 San Jose State University 1845**  
SIMULATION OF TROPICAL BIOMASS BURING PLUMES  
*Period Obligations*  
05/04/1992-01/14/1994 FY93: \$79,172 TOTAL: \$139,688  
*Prin. Invest. NASA Tech. Officer CASE Category*  
P HAMILL ARC/R B CHATFIELD 31-Atmos Sci  
J A VASTANO ....S S WEGENER

**NCC 2-593 San Jose State University 1839**  
LIGHTING REQUIREMENTS FOR THE ANIMAL (RAT) HOUSING  
MODULES TO BE USED IN MICROGRAVITY  
*Period Obligations*  
03/13/1989-09/30/1993 FY93: \$9,676 TOTAL: \$211,445  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D C HOLLEY ARC/C M WINGET 51-Biological Sci  
....P X CALLAHAN

**NCC 2-779 San Jose State University 1846**  
SCIENTIFIC EVALUATION OF HARDWARE AND SUPPORTING STU  
DIES FOR HARDWARE DEVELOPMENT  
*Period Obligations*  
02/09/1993-10/31/1993 FY93: \$74,911 TOTAL: \$74,911  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D C HOLLEY ARC/C M WINGET 51-Biological Sci  
....J G C JAHNS

**NCC 2-640 San Jose State University 1840**  
OATGFUBDER EVA/SUIT PROJECT  
*Period Obligations*  
09/12/1989-10/31/1992 FY93: \$4 TOTAL: \$149,072  
*Prin. Invest. NASA Tech. Officer CASE Category*  
E UNWIN ARC/R N BRETOI 42-Astro Engr  
J MAGISTAO ....A REINHARDT  
G SELVADURAY

**NCC 2-798 San Jose State University 1847**  
FLIGHT HUMAN FACTORS  
*Period Obligations*  
05/12/1993-01/31/1994 FY93: \$880,398 TOTAL: \$880,398  
*Prin. Invest. NASA Tech. Officer CASE Category*  
K P JORDAN ARC/R K DISMUKES 69-Psych, NEC  
D



**NASA'S UNIVERSITY PROGRAM  
CALIFORNIA (Continued)**

**NCC 2-822 San Jose State University 1848**  
RODENT ACOUSTIC TOLERANCE STUDY  
*Period Obligations*  
08/19/1993-09/30/1994 FY93: \$44,393 TOTAL: \$44,393  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D C HOLLEY ARC/S M HING 51-Biological Sci  
....C C JOHNSON

**NGT 00-070-131 San Jose State University 1849**  
NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
MINORITY FOCUS PROGRAM  
*Period Obligations*  
08/16/1989-08/31/1992 FY93: \$4,314 TOTAL: \$46,686  
*Prin. Invest. NASA Tech. Officer CASE Category*  
P ENGLERT HQ/F C OWENS 12-Chemistry

**NGT 00-070-227 San Jose State University 1850**  
NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
MINORITY FOCUS PROGRAM  
*Period Obligations*  
08/12/1991-08/31/1994 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J F BECKER HQ/F C OWENS 13-Physics

**NAGW 2378 Santa Clara University 1851**  
BIOLOGICAL IMPLICATIONS OF THE MARS 94 MISSION  
*Period Obligations*  
04/05/1991-02/28/1994 FY93: \$20,706 TOTAL: \$62,103  
*Prin. Invest. NASA Tech. Officer CASE Category*  
H P KLEIN HQ/J D RUMMEL 51-Biological Sci

**NCA 2-401 Santa Clara University 1852**  
EXPLORATORY STUDY OF SCRAMJET IN TUBE CONCEPT (JOINT  
RESEARCH INTERCHANGE)  
*Period Obligations*  
04/07/1989-09/30/1991 FY93: \$0 TOTAL: \$71,497  
*Prin. Invest. NASA Tech. Officer CASE Category*  
T G YIP ARC/A W STRAWA 46-Mech Engr

**NCA 2-527 Santa Clara University 1853**  
EXPRESSION OF THE FAB A AND FAB B GENES IN OSCILLATORIA  
LIMNETICA AND RELATED ORGANISMS  
*Period Obligations*  
06/11/1990-06/10/1993 FY93: \$13,000 TOTAL: \$28,276  
*Prin. Invest. NASA Tech. Officer CASE Category*  
H P KLEIN ARC/L L JAHNKE 51-Biological Sci

**NCA 2-643 Santa Clara University 1854**  
HYPERSONIC NOZZLE FLOW ANALYSIS USING THE METHOD OF  
CHARACTERISTICS  
*Period Obligations*  
08/01/1991-01/31/1992 FY93: \$0 TOTAL: \$28,956  
*Prin. Invest. NASA Tech. Officer CASE Category*  
G T YIP ARC/J V BOWLES 46-Mech Engr

**NCA 2-674 Santa Clara University 1855**  
SPACE STATION LIFE CENTRIFUGE FEASIBILITY STUDY FOR  
MICRO-G ISOLATION  
*Period Obligations*  
12/16/1991-12/14/1992 FY93: \$0 TOTAL: \$40,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
S D HADDAD ARC/R G SYNNESTVEDT 46-Mech Engr

**NCA 2-696 Santa Clara University 1856**  
A DEHUMIDIFICATION SYSTEM FOR LOW GRAVITY-APPLICATION  
*Period Obligations*  
04/15/1992-12/31/1993 FY93: \$0 TOTAL: \$40,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
M A SAAD ARC/R D MACELROY 46-Mech Engr

**NCA 2-697 Santa Clara University 1857**  
THE APPLICABILITY OF DECENTRALIZED CONTROL PRINCIPLES  
AND METHODS TO CELSS PROGRAM SYSTEMS CONTROL  
*Period Obligations*  
03/20/1992-04/14/1993 FY93: \$0 TOTAL: \$40,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D D SILJAK ARC/R D MACELROY 46-Mech Engr

**NCC 2-644 Santa Clara University 1858**  
PARALLEL PROCESSING FOR SCIENTIFIC COMPUTATIONS  
*Period Obligations*  
09/20/1989-06/14/1994 FY93: \$63,887 TOTAL: \$233,513  
*Prin. Invest. NASA Tech. Officer CASE Category*  
H S ALKHATIB ARC/K G STEVENS JR. 22-Computer Science

**NCC 2-793 Santa Clara University 1859**  
VISION-BASED AIRCRAFT GUIDANCE  
*Period Obligations*  
04/16/1993-09/30/1993 FY93: \$40,003 TOTAL: \$40,003  
*Prin. Invest. NASA Tech. Officer CASE Category*  
P K MENON ARC/B SRIDHAR 41-Aero Engr  
....V L CHENG

**NAG 5-1260 Sonoma State University 1860**  
HIGH TIME RESOLUTION STUDIES BINARY X-RAY PULSARS  
*Period Obligations*  
08/04/1989-08/31/1993 FY93: \$0 TOTAL: \$116,020  
*Prin. Invest. NASA Tech. Officer CASE Category*  
L R COMINSKY GSFC/D WEST 12-Chemistry

**NAG 5-1621 Sonoma State University 1861**  
ANALYSIS OF THE VARIABLE SOURCES OBSERVED BY IRAS  
*Period Obligations*  
06/11/1991-06/14/1994 FY93: \$40,300 TOTAL: \$122,622  
*Prin. Invest. NASA Tech. Officer CASE Category*  
G G SPEAR GSFC/D WEST 11-Astronomy

**NAG 5-1684 Sonoma State University 1862**  
ROSAT OBSERVATIONS OF MXB 1659-29 AND EXO 0748-676  
*Period Obligations*  
07/15/1991-09/30/1994 FY93: \$20,000 TOTAL: \$26,700  
*Prin. Invest. NASA Tech. Officer CASE Category*  
L R COMINSKY GSFC/R PETRE 11-Astronomy

**NASA'S UNIVERSITY PROGRAM  
CALIFORNIA (Continued)**

**NAG 5-2032 Sonoma State University 1863**  
LONG TERM MONITORING OF NEUTRON STAR BINARY SYSTEM S  
USING BATSE  
*Period* *Obligations*  
07/17/1992-07/31/1994 FY93: \$34,800 TOTAL: \$58,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
L R COMINSKY GSFC/J P NORRIS 11-Astronomy  
....N WHITE

**NAG 2-640 Stanford University 1870**  
A QUASI-PROCEDURAL, KNOWLEDGE-BASED SYSTEM FOR AI  
RCRAFT SYNTHESIS  
*Period* *Obligations*  
05/31/1990-06/30/1993 FY93: \$35,000 TOTAL: \$275,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
I KROO ARC/H MIURA 41-Aero Engr  
....G H KIDWELL

**NAG 1-361 Stanford University 1864**  
AN ELEMENT-BY-ELEMENT SOLUTION ALGORITHM FOR PROBLEMS  
OF COMPUTATIONAL FLUID DYNAMICS  
*Period* *Obligations*  
05/03/1983-12/31/1992 FY93: \$0 TOTAL: \$785,516  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
T J HUGHES LARC/G C OLSEN 29-Math/Computer, NEC

**NAG 2-673 Stanford University 1871**  
IN SUPPORT OF PLANETARY DATA SYSTEM  
*Period* *Obligations*  
10/02/1990-08/31/1994 FY93: \$111,075 TOTAL: \$347,896  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
G L TYLER ARC/J N CUZZI 11-Astronomy  
M R SHOWALTER

**NAG 1-1052 Stanford University 1865**  
AIRCRAFT DESIGN AND OPTIMIZATION USING A KNOWLEDGE  
-BASED SYSTEM  
*Period* *Obligations*  
09/18/1989-01/31/1993 FY93: \$1 TOTAL: \$215,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
I KROO LARC/J L ROGERS 41-Aero Engr

**NAG 2-686 Stanford University 1872**  
RESEARCH CENTER FOR COMPUTATIONAL ELECTROMAGNETIS M  
*Period* *Obligations*  
09/07/1990-09/30/1992 FY93: \$0 TOTAL: \$140,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R W MACCORMACK ARC/P M GOORJIAN 45-Elec Engr  
D R CHAPMAN ....A C WOO

**NAG 1-1494 Stanford University 1866**  
A ROLE FOR GENETIC ALGORITHMS IN A PRELIMINARY DESIGN  
ENVIRONMENT  
*Period* *Obligations*  
03/26/1993-09/30/1993 FY93: \$20,000 TOTAL: \$20,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
I M KROO LARC/J SOBIESKI 41-Aero Engr

**NAG 2-701 Stanford University 1873**  
AUTOMATED ANALYSIS AND DISPLAY OF 3-D DATA SETS  
*Period* *Obligations*  
04/12/1991-01/31/1994 FY93: \$70,000 TOTAL: \$331,479  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
L HESSELINK ARC/T A LASINSKI 41-Aero Engr

**NAG 2-248 Stanford University 1867**  
DESIGN OF TESTBED AND EMULATION TOOLS  
*Period* *Obligations*  
10/01/1983-01/31/1994 FY93: \$153,820 TOTAL: \$1,306,215  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
S F LUNDSTROM ARC/K G STEVENS JR. 22-Computer Science  
M J FLYNN ....R S LIM  
K B TENNAL

**NAG 2-703 Stanford University 1874**  
OPEN ARCHITECTURES FOR FORMAL REASONING AND DEDUCTI  
VE TECHNOLOGIES FOR SOFTWARE DEVELOPMENT  
*Period* *Obligations*  
07/16/1991-04/30/1993 FY93: \$342,358 TOTAL: \$963,406  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J MCCARTHY ARC/H LUM 22-Computer Science  
....D MCKELLAR

**NAG 2-520 Stanford University 1868**  
AN INVESTIGATION OF PLASMA WAVE PHENOMENA ASSOCIATWTH  
THE QUESTION OF LIGHTNING ON VENUS  
*Period* *Obligations*  
04/01/1988-09/30/1991 FY93: \$0 TOTAL: \$130,847  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
D L CARPENTER ARC/L E LASHER 11-Astronomy  
....R O FIMMEL

**NAG 2-759 Stanford University 1875**  
A THEORETICAL AND EXPEIMENTAL INVESTIGATION OF THE O  
BLIQUE FLYING WING  
*Period* *Obligations*  
02/11/1992-12/31/1993 FY93: \$100,000 TOTAL: \$200,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
I KROO ARC/T J GREGORY 41-Aero Engr  
R T JONES

**NAG 2-581 Stanford University 1869**  
RESEARCH ON INTELLIGENT SYSTEMS FOR SCIENCE AND E  
NGINEERING APPLICATIONS  
*Period* *Obligations*  
06/20/1989-12/31/1993 FY93: \$1,243,084 TOTAL: \$4,843,396  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
E A FEIGENBAUM ARC/P E FRIEDLAND 22-Computer Science

**NAG 2-842 Stanford University 1876**  
CENTER FOR AERONAUTICS AND SPACE INFORMATION SCIENCE  
S  
*Period* *Obligations*  
06/10/1993-03/31/1994 FY93: \$800,000 TOTAL: \$800,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
M J FLYNN ARC/C H SCHULBACH 45-Elec Engr  
....K G STEVENS—JR.

**NASA'S UNIVERSITY PROGRAM  
CALIFORNIA (Continued)**

**NAG 3-1040** **Stanford University** **1877**  
DEV OF AN OPTICAL DIAGNOSTIC FAC FOR PERF EVAL OF LOW  
POWER DC ARCJET THRUSTERS  
*Period* *Obligations*  
04/28/1989-03/24/1994 FY93: \$70,000 TOTAL: \$391,768  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
M A CAPPELLI LERC/L M CARNEY 46-Mech Engr  
R K HANSON ....F M CURRAN

**NAG 5-1549** **Stanford University** **1885**  
THUNDERSTORMS COUPLING TO THE MAGNETOSPHERE AND AS  
SOCIATED IONOSPHERIC EFFECTS  
*Period* *Obligations*  
04/17/1991-04/30/1994 FY93: \$117,213 TOTAL: \$291,830  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
U S INAN GSFC/G D BULLOCK 19-Phys Sci, NEC

**NAG 3-1177** **Stanford University** **1878**  
PROPOSED RESEARCH IN INTEGRATED DESIGN  
*Period* *Obligations*  
06/28/1990-02/15/1994 FY93: \$36,217 TOTAL: \$173,217  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
S M ROCK LERC/P J OUZTS 41-Aero Engr  
....C F LORENZO

**NAG 5-1605** **Stanford University** **1886**  
CELESTIAL GAMMA RAY STUDY  
*Period* *Obligations*  
05/20/1991-02/28/1994 FY93: \$678,328 TOTAL: \$2,168,847  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
P MICHELSON GSFC/R C HARTMAN 11-Astronomy  
....C E FICHTEL

**NAG 3-1185** **Stanford University** **1879**  
QUANTITATIVE PLIF IMAGING IN HIGH-PRESSURE COMBUSTION  
*Period* *Obligations*  
06/29/1990-01/12/1994 FY93: \$185,000 TOTAL: \$620,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R K HANSON LERC/K S CHUN 46-Mech Engr

**NAG 5-2036** **Stanford University** **1887**  
THEORETICAL STUDIES OF SPECTRA OF GAMMA-RAY BURSTS  
*Period* *Obligations*  
07/17/1992-07/31/1993 FY93: \$24,000 TOTAL: \$40,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
V PETROSIAN GSFC/J P NORRIS 11-Astronomy  
....N WHITE

**NAG 3-1253** **Stanford University** **1880**  
LIQUID METAL DROP EJECTION  
*Period* *Obligations*  
02/28/1991-04/30/1992 FY93: \$0 TOTAL: \$25,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
B T KHURI-YAKUR LERC/R C OEFTERING 45-Elec Engr

**NAG 5-2037** **Stanford University** **1888**  
GAMMA-RAY EMISSIONS FROM RADIO PULSARS  
*Period* *Obligations*  
07/17/1992-09/30/1993 FY93: \$0 TOTAL: \$16,433  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R W ROMANI GSFC/J P NORRIS 11-Astronomy  
....N WHITE

**NAG 3-1475** **Stanford University** **1881**  
PROBLEMS IN MICROGRAVITY FLUID MECHANICS: THERMOCA  
PILLARY INSTABILITIES AND G-JITTER CONVECTION  
*Period* *Obligations*  
04/30/1993-04/25/1994 FY93: \$117,928 TOTAL: \$117,928  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
G M HOMSY LERC/R L THOMPSON 19-Phys Sci, NEC

**NAG 8-774** **Stanford University** **1889**  
PROTEIN CRYSTAL GROWTH IN LOW GRAVITY  
*Period* *Obligations*  
04/27/1989-09/30/1992 FY93: \$0 TOTAL: \$405,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R S FEIGELSON MSFC/M PUSEY 19-Phys Sci, NEC

**NAG 5-476** **Stanford University** **1882**  
INVESTIGATIONS OF CONTROLLED ON A NATURALLY OCCURRING  
WAVE-PARTICLE INTERACTION  
*Period* *Obligations*  
10/01/1984-09/30/1993 FY93: \$25,000 TOTAL: \$1,259,833  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R A HELLIWELL GSFC/G D BULLOCK 19-Phys Sci, NEC  
....R A HOFFMAN

**NAG 8-784** **Stanford University** **1890**  
STUDY OF THERMAL PLASMA STRUCTURE  
*Period* *Obligations*  
08/01/1989-11/01/1992 FY93: \$0 TOTAL: \$113,252  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
D L CARPENTER MSFC/B L GILES 19-Phys Sci, NEC  
....S A FIELDS

**NAG 5-664** **Stanford University** **1883**  
FINE SCALE STRUCTURE OF THE SOLAR CHROMOSPHERIC  
*Period* *Obligations*  
05/04/1990-11/30/1993 FY93: \$246,996 TOTAL: \$1,006,856  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J G TIMOTHY GSFC/L J EARLY 13-Physics  
....R H PLESS

**NAG 8-920** **Stanford University** **1891**  
PROTEIN CRYSTAL GROWTH IN LOW GRAVITY  
*Period* *Obligations*  
07/10/1992-06/30/1993 FY93: \$0 TOTAL: \$135,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R S FEIGELSON MSFC/M L PUSEY 43-Chem Engr

**NAG 5-1103** **Stanford University** **1884**  
STUDY INTERACTIONS MAGNETOSPHERE ENERGETIC PARTICLES  
*Period* *Obligations*  
10/15/1988-12/31/1991 FY93: \$0 TOTAL: \$215,875  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R A HELLIWELL GSFC/G BULLOCK 39-Env Sci, NEC

**NAG 9-458** **Stanford University** **1892**  
ANALYSIS OF HIGH SPATIAL RESOLUTION OF ORGANIC MOLECULES  
IN EXTRATERRESTRIAL SAMPLES  
*Period* *Obligations*  
07/16/1990-09/01/1993 FY93: \$0 TOTAL: \$157,789  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R N ZARE JSC/I D BROWNE 19-Phys Sci, NEC

# NASA'S UNIVERSITY PROGRAM CALIFORNIA (Continued)

**NAGW 419** **Stanford University** **1893**  
FORMATION OF THE STANFORD CTR FOR AERONAUTICS AND SPACE INFORMATION SCIENCES  
*Period* *Obligations*  
01/12/1983-11/30/1992 FY93: \$0 TOTAL: \$9,035,006  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
P M BANKS HQ/L B HOLCOMB 22-Computer Science  
M J WISKERCHEN

**NAGW 1918** **Stanford University** **1901**  
INVESTIGATION OF CONTRASTING PORTIONS OF THE WESTERN NORTH AMERICAN CONSTRUCTION MARGIN WHITE INYO  
*Period* *Obligations*  
05/05/1990-11/20/1992 FY93: \$0 TOTAL: \$155,444  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
W G ERNST HQ/M BALTUCK 32-Geological Sci  
....T J PIEPER

**NAGW 628** **Stanford University** **1894**  
INTERPRETATION OF SAR IMAGES OF SEA ICE  
*Period* *Obligations*  
03/01/1984-11/30/1991 FY93: \$459 TOTAL: \$675,496  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J VESECKY HQ/R H THOMAS 33-Oceanography  
R BRACEWELL ....W S WILSON

**NAGW 1971** **Stanford University** **1902**  
RESEARCH IN PLANETARY ATMOSPHERE  
*Period* *Obligations*  
03/13/1990-09/30/1993 FY93: \$95,000 TOTAL: \$355,504  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
V R ESHLEMAN HQ/J T BERGSTRALH 11-Astronomy

**NAGW 965** **Stanford University** **1895**  
GRADUATE HYPERSONIC TRAINING/RESEARCH  
*Period* *Obligations*  
08/01/1986-10/31/1992 FY93: \$0 TOTAL: \$1,294,435  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
D R CHAPMAN HQ/S M WANDER 13-Physics  
D BAGANOFF ....R A GRAVES

**NAGW 1976** **Stanford University** **1903**  
STUDIES OF THE IMPULSIVE PHASE OF SOLAR FLARES BASED ON SMM AND OTHER DATA  
*Period* *Obligations*  
01/20/1990-10/31/1993 FY93: \$99,000 TOTAL: \$351,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
V PETROSIAN HQ/J D BOHLIN 13-Physics  
....S KANE

**NAGW 1068** **Stanford University** **1896**  
INFLUENCE OF SOIL FERTILITY AND DISTURBANCE  
*Period* *Obligations*  
03/15/1987-03/14/1994 FY93: \$75,914 TOTAL: \$443,244  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
P VITOUSEK HQ/M M AVERNER 51-Biological Sci

**NAGW 2140** **Stanford University** **1904**  
RADAR STUDIES OF LUNAR AND PLANETARY SURFACES  
*Period* *Obligations*  
05/30/1990-10/31/1993 FY93: \$48,000 TOTAL: \$183,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
G L TYLER HQ/T A MAXWELL 32-Geological Sci

**NAGW 1582** **Stanford University** **1897**  
PRECIPITATION OF RADIATION BELT PARTICLES  
*Period* *Obligations*  
12/27/1988-02/28/1994 FY93: \$71,847 TOTAL: \$298,693  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
U S INAN HQ/M M MELLOTT 13-Physics  
....T W PERRY

**NAGW 2159** **Stanford University** **1905**  
REMOTE SENSING AND ECOLOGICAL POPULATION DYNAMICS: INTERTIDAL BARNACLE SPECIES IN CAL. CURRENT SYS  
*Period* *Obligations*  
07/27/1990-04/30/1993 FY93: \$0 TOTAL: \$319,835  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J ROUGHGARDEN HQ/M M AVERNER 54-Env Biology

**NAGW 1680** **Stanford University** **1898**  
MECHANISMS OF GENERATION EVOLUTION AND PROPAGATION OF VLF  
*Period* *Obligations*  
03/03/1989-02/28/1994 FY93: \$62,461 TOTAL: \$327,422  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R A HELLIWELL HQ/M M MELLOTT 13-Physics  
....T W PERRY

**NAGW 2265** **Stanford University** **1906**  
PHYSICS OF SOLAR ACTIVITY  
*Period* *Obligations*  
12/14/1990-10/30/1993 FY93: \$186,339 TOTAL: \$436,339  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
P A STURROCK HQ/W WAGNER 13-Physics  
....K LANG

**NAGW 1790** **Stanford University** **1899**  
MAGNETOHYDRODYNAMIC STUDIES OF SOLAR WIND FLOW  
*Period* *Obligations*  
08/08/1989-07/31/1993 FY93: \$25,271 TOTAL: \$156,271  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J R SPREITER HQ/M M MELLOTT 13-Physics  
....T W PERRY

**NAGW 2290** **Stanford University** **1907**  
TOPICS IN PLASMA ASTROPHYSICS  
*Period* *Obligations*  
12/14/1990-10/31/1992 FY93: \$39,500 TOTAL: \$155,500  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
P A STURROCK HQ/L J KALUZIENSKI 13-Physics

**NAGW 1910** **Stanford University** **1900**  
NAGW-1910/STANFORD UNIV/LOW POWER SIGNAL PROCESSING TECHNOLOGY FOR SPACE FLIGHT APPLICATIONS  
*Period* *Obligations*  
02/13/1990-01/31/1993 FY93: \$0 TOTAL: \$300,226  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
A M PETERSON HQ/P H SMITH 45-Elec Engr  
J B BURR ....S C HARTMAN

**NAGW 2437** **Stanford University** **1908**  
NAGW-2437/STANFORD UNIV/ANALYSIS OF VOYAGER RADIO OCCULTATION OBSERVATIONS OF TRITON  
*Period* *Obligations*  
06/20/1991-12/31/1993 FY93: \$148,119 TOTAL: \$421,073  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
L TYLER HQ/W L QUAIDE 19-Phys Sci, NEC

**NASA'S UNIVERSITY PROGRAM  
CALIFORNIA (Continued)**

**NAGW 2442** **Stanford University** **1909**  
NAGW-2442/STANFORD UNIV/INVESTIGATION OF ATMOSPHERIC WAVES ON NEPTUNE  
*Period* *Obligations*  
07/01/1991-02/28/1994 FY93: \$63,753 TOTAL: \$224,601  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
V R ESHLEMAN HQ/W L QUAIDE 19-Phys Sci, NEC

**NAGW 2502** **Stanford University** **1910**  
NAGW-2502/STANFORD UNIV/STRUCTURE OF SOLAR MAGNETIC AND VELOCITY FIELDS  
*Period* *Obligations*  
07/01/1991-01/31/1994 FY93: \$150,000 TOTAL: \$431,945  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
P H SCHERRER HQ/W J WAGNER 45-Elec Engr  
...../K LANG

**NAGW 2776** **Stanford University** **1911**  
THE SIXTH NATIONAL CONFERENCE OF BLACK PHYSICS STUDENTS  
*Period* *Obligations*  
11/25/1991-09/30/1992 FY93: \$0 TOTAL: \$35,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
A B WALKER HQ/J K ALEXANDER 13-Physics  
C W BATES ...../D A HOLLAND

**NAGW 2793** **Stanford University** **1912**  
SATELLITE TEST OF THE EQUIVALENCE PRINCIPLE STEP  
*Period* *Obligations*  
12/13/1991-09/30/1993 FY93: \$900,000 TOTAL: \$1,402,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
C W EVERITT HQ/B M CARPENTER 13-Physics

**NAGW 2871** **Stanford University** **1913**  
HEATING AND IONIZATION OF THE LOWER IONOSPHERE BY LIGHTNING DISCHARGES  
*Period* *Obligations*  
01/31/1992-03/31/1994 FY93: \$71,167 TOTAL: \$138,233  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
U INAN HQ/D L RESONER 13-Physics  
...../J D BOHLIN

**NAGW 2894** **Stanford University** **1914**  
ANALYSIS OF WHISTLER-MODE WAVES OBSERVED AT NEPTUNE  
*Period* *Obligations*  
02/19/1992-03/31/1994 FY93: \$46,967 TOTAL: \$89,765  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
U S INAN HQ/W L QUAIDE 19-Phys Sci, NEC

**NAGW 2963** **Stanford University** **1915**  
NEUTRON STARS POPULATIONS IN X-RAYS AND GAMMA RAY S  
*Period* *Obligations*  
03/20/1992-02/28/1994 FY93: \$50,000 TOTAL: \$100,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R ROMANI HQ/L J KALUZIENSKI 11-Astronomy  
...../A N BUNNER

**NAGW 3049** **Stanford University** **1916**  
NITROGEN AND CARBON TRACE GAS FLUXES FROM TROPICAL AGRICULTURE  
*Period* *Obligations*  
04/17/1992-04/30/1994 FY93: \$135,000 TOTAL: \$240,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
P M VITOUSEK HQ/A C JANETOS 39-Env Sci, NEC  
...../D E WICKLAND

**NAGW 3223** **Stanford University** **1917**  
NAGW-3223/STANFORD UNIV/MULTIVARIATE DISTRIBUTIONS AND CORRELATIONS OF ASTROPHYSICAL PARAMETERS  
*Period* *Obligations*  
10/21/1992-09/14/1993 FY93: \$22,900 TOTAL: \$22,900  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
V PETROSIAN HQ/G R RIEGLER 11-Astronomy

**NAGW 3375** **Stanford University** **1918**  
SPACEBORNE INSTRUMENT TECHNOLOGY DEVELOPMENT FOR BISTATIC RADAR STUDIES OF THE PLANETS  
*Period* *Obligations*  
02/09/1993-03/31/1994 FY93: \$170,938 TOTAL: \$170,938  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
G L TYLER HQ/H C BRINTON 19-Phys Sci, NEC

**NAGW 3443** **Stanford University** **1919**  
INVESTIGATION OF ATMOSPHERIC WAVES ON VENUS  
*Period* *Obligations*  
03/10/1993-03/14/1994 FY93: \$45,932 TOTAL: \$45,932  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
G L TYLER HQ/J BERGSTRALH 31-Atmos Sci

**NAGW 3489** **Stanford University** **1920**  
DEVELOPMENT OF A BROADBAND HIGH ENERGY GAMMA-RAY TELESCOPE SILENT STRIP DETECTORS  
*Period* *Obligations*  
04/02/1993-03/31/1994 FY93: \$99,995 TOTAL: \$99,995  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
P F MICHELSON HQ/L J KALUZIENSKI 11-Astronomy  
...../A N BUNNER

**NAGW 3629** **Stanford University** **1921**  
ANALYSES AT HIGH SPECTRAL RESOLUTION OF ORGANIC MOLECULES IN EXTRATERRESTRIAL SAMPLES  
*Period* *Obligations*  
06/03/1993-07/30/1994 FY93: \$46,350 TOTAL: \$46,350  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R ZARE HQ/J BOYCE 32-Geological Sci

**NAGW 3702** **Stanford University** **1922**  
INFERENCE OF SURFACE PROPERTIES FROM COMPOSITE RADAR SCATTERING FUNCTIONS  
*Period* *Obligations*  
09/02/1993-06/30/1994 FY93: \$80,000 TOTAL: \$80,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
G L TYLER HQ/J T BERGSTRALH 32-Geological Sci

# **NASA'S UNIVERSITY PROGRAM** **CALIFORNIA (Continued)**

**NAS 1-18778**                      **Stanford University**                      **1923**  
STUDY OF DAMAGE TOLERANCE OF THERMOPLASTIC COMPOSITES  
*Period*    *Obligations*  
12/16/1988-09/15/1993                      FY93: \$69,114                      TOTAL: \$449,985  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
G S SPRINGER                      LARC/C POE                      13-Physics  
...../C E HARRIS

**NCA 2-431**                      **Stanford University**                      **1930**  
TIME DEPENDENT SIMULATION OF THE FLOW AROUND THE PROSTHETIC HEART VALVES  
*Period*    *Obligations*  
08/01/1989-06/30/1992                      FY93: \$0                      TOTAL: \$80,000  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
I D CHANG                      ARC/D KWAK                      41-Aero Engr

**NAS 5-29389**                      **Stanford University**                      **1924**  
MAMA DETECTORS FOR THE HST IMAGING SPECTROGRAPH SUPPORT AND DEVELOPMENT  
*Period*    *Obligations*  
12/15/1986-03/14/1994                      FY93: \$436,461                      TOTAL: \$3,764,092  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
J G TIMOTHY                      GSFC/D VITAGLIANO                      41-Aero Engr

**NCA 2-440**                      **Stanford University**                      **1931**  
SOFTWARE SYSTEMS FOR COMPOSITE ADAPTIVE GRID METHOD S FOR FLUID DYNAMICS  
*Period*    *Obligations*  
08/15/1989-06/30/1992                      FY93: \$0                      TOTAL: \$78,182  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
J OLIGER                      ARC/D KWAK                      22-Computer Science

**NAS 5-30386**                      **Stanford University**                      **1925**  
MICHAELSON DOPPLER IMAGER ISTP SOHO PROGRAM  
*Period*    *Obligations*  
11/01/1988-07/01/1995                      FY93: \$12,525,000                      TOTAL: \$47,000,300  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
R H SCHERRER                      GSFC/J GERVIN                      13-Physics

**NCA 2-493**                      **Stanford University**                      **1932**  
FRACTURE PROCESSES IN HIGH TOUGHNESS, LOW STRENGTH MATERIALS  
*Period*    *Obligations*  
03/20/1990-03/31/1992                      FY93: \$0                      TOTAL: \$36,500  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
S SHEPPARD                      ARC/T L PANONTIN                      46-Mech Engr

**NAS 5-30387**                      **Stanford University**                      **1926**  
CO-I TO SUPPORT SUMER AND CDS INVESTIGATIONS SOHO  
*Period*    *Obligations*  
11/01/1988-08/15/1995                      FY93: \$1,058,942                      TOTAL: \$22,295,322  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
J TIMOTHY                      GSFC/J GERVIN                      42-Astro Engr

**NCA 2-494**                      **Stanford University**                      **1933**  
HIGH RESOLUTION STUDIES OF MOLECULAR ENERGY EXCHANGE IN NON-EQUILIBRIUM FLOWS  
*Period*    *Obligations*  
03/22/1990-09/30/1992                      FY93: \$838                      TOTAL: \$68,940  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
D BERSHADER                      ARC/S P SHARMA                      41-Aero Engr  
...../G S DEIWERT

**NAS 5-31726**                      **Stanford University**                      **1927**  
EOS - 'BIOSPHERE-ATMOSPHERE INTERACTIONS' STUDY  
*Period*    *Obligations*  
10/24/1991-12/31/1999                      FY93: \$137,100                      TOTAL: \$353,200  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
H MOONEY                      GSFC/P SELLERS                      31-Atmos Sci  
P VITOUSEK

**NCA 2-495**                      **Stanford University**                      **1934**  
STUDY OF CHEMICAL NONEQUILIBRIUM IN A PARTICLE SIMULATION  
*Period*    *Obligations*  
04/06/1990-03/31/1992                      FY93: \$0                      TOTAL: \$78,617  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
D BAGANOFF                      ARC/G S DEIWERT                      42-Astro Engr  
...../W J FEIEREISEN

**NAS 8-36125**                      **Stanford University**                      **1928**  
GRAVITY PROBE B SHUTTLE FLIGHT EXPERIMENT ENGINEERING DEVELOPMENT (GP8B) PHASE I DEFINITION  
*Period*    *Obligations*  
03/29/1985-03/31/1995                      FY93: \$28,750,326                      TOTAL: \$139,488,409  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
C W EVERITT                      MSFC/R ISE                      13-Physics  
D DEDRA                      ..../R A POTTER  
W FAIRBANK

**NCA 2-503**                      **Stanford University**                      **1935**  
HUMAN FACTORS AND BIOMECHANICS IN SPACESUIT DESIGN  
*Period*    *Obligations*  
04/06/1990-06/30/1992                      FY93: \$0                      TOTAL: \$75,998  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
B B LUSIGNAN                      ARC/B WEBBON                      46-Mech Engr  
...../B LUNA

**NAS 8-36812**                      **Stanford University**                      **1929**  
STUDY ENTITLED: A SHUTTLE ELECTRODYNAMIC TESTER SYSTEM.  
*Period*    *Obligations*  
02/05/1986-09/26/1992                      FY93: \$0                      TOTAL: \$9,963,907  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
P BANKS                      MSFC/J H KERR                      31-Atmos Sci  
...../M W CASTLEMAN

**NCA 2-530**                      **Stanford University**                      **1936**  
TURBULENCE TRANSPORT IN THE SOLAR NEBULA  
*Period*    *Obligations*  
06/18/1990-03/08/1992                      FY93: \$0                      TOTAL: \$80,000  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
J H FERZIGER                      ARC/J B POLLACK                      46-Mech Engr

**NASA'S UNIVERSITY PROGRAM  
CALIFORNIA (Continued)**

**NCA 2-535** **Stanford University** **1937**  
REYNOLDS STRESS MEASUREMENTS IN THE NEAR WALL ZONE  
OF THREE-DIMENSIONAL BOUNDARY LAYERS  
*Period* *Obligations*  
06/19/1990-09/31/1992 FY93: \$0 TOTAL: \$50,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J K EATON ARC/D A JOHNSON 46-Mech Engr

**NCA 2-607** **Stanford University** **1944**  
LASER BASED ABSORPTION DIAGNOSTICS FOR SHOCK TUBE AND  
SHOCK TUNNEL FLOWS  
*Period* *Obligations*  
04/26/1991-04/30/1993 FY93: \$0 TOTAL: \$79,992  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R K HANSON ARC/J A CAVOLOWSKY 41-Aero Engr  
....G S DEIWERT

**NCA 2-557** **Stanford University** **1938**  
THEORY OF HYDROPHOBIC EFFECTS  
*Period* *Obligations*  
09/17/1990-09/30/1991 FY93: \$2 TOTAL: \$23,358  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
H C ANDERSON ARC/R D MACELROY 12-Chemistry

**NCA 2-631** **Stanford University** **1945**  
TURBULENCE MEASUREMENTS ON A HELICOPTER BLADE-TIP  
MODEL  
*Period* *Obligations*  
06/24/1991-09/30/1992 FY93: \$0 TOTAL: \$22,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
P BRADSHAW ARC/G ZILLIAC 41-Aero Engr  
....L CARR

**NCA 2-571** **Stanford University** **1939**  
PRECONDITIONED BICONJUGATE GRADIENT TYPE ALGORITHM S  
ON MASSIVELY PARALLEL ARCHITECTURES  
*Period* *Obligations*  
10/19/1990-09/30/1991 FY93: \$0 TOTAL: \$26,553  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
G H GOLUB ARC/D H BAILEY 22-Computer Science

**NCA 2-632** **Stanford University** **1946**  
GRAPHICAL ANALYSIS OF LARGE FLUID FLOW DATA SETS  
*Period* *Obligations*  
07/05/1991-06/23/1993 FY93: \$0 TOTAL: \$80,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
L HESSELINK ARC/L SCHIFF 41-Aero Engr

**NCA 2-578** **Stanford University** **1940**  
COMPUTATIONAL STUDY OF UNSTEADY SEPARATED FLOW  
AROUND MOVING SLENDER BODIES  
*Period* *Obligations*  
12/11/1990-09/30/1992 FY93: \$0 TOTAL: \$80,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
L HESSELINK ARC/L B SCHIFF 41-Aero Engr

**NCA 2-638** **Stanford University** **1947**  
RADIATION STUDIES OF HIGHLY ENERGIZED SHOCK-HEATED  
GASES  
*Period* *Obligations*  
07/19/1991-10/31/1993 FY93: \$0 TOTAL: \$70,154  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
D BERSHADER ARC/S P SHARMA 41-Aero Engr  
....G S DEIWERT

**NCA 2-579** **Stanford University** **1941**  
DATA COMPRESSION IN SCIENTIFIC VISUALIZATION  
*Period* *Obligations*  
01/15/1991-01/14/1993 FY93: \$0 TOTAL: \$80,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
L HESSELINK ARC/V WATSON 41-Aero Engr

**NCA 2-641** **Stanford University** **1948**  
A STUDY OF VERTICAL CLOUD STRUCTURE IN THE ATMOSPHERE  
OF NEPTUNE  
*Period* *Obligations*  
08/27/1991-06/30/1992 FY93: \$0 TOTAL: \$35,760  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
G I TYLER ARC/C STOKER 11-Astronomy

**NCA 2-594** **Stanford University** **1942**  
INTEGRATED HELICOPTER/ENGINE CONTROL WITH VARIABLE  
ROTOR SPEED  
*Period* *Obligations*  
03/01/1991-09/30/1993 FY93: \$0 TOTAL: \$60,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
S M ROCK ARC/J A SCHROEDER 41-Aero Engr  
....D WATSON

**NCA 2-669** **Stanford University** **1949**  
PRECONDITIONED CONJUGATE GRADIENT TYPE ALGORITHMS FOR  
STRUCTURAL ANALYSIS APPLIED ON MASSIVELY PARALLEL  
*Period* *Obligations*  
11/04/1991-10/31/1992 FY93: \$0 TOTAL: \$28,664  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
G H GOLUB ARC/D H BAILEY 22-Computer Science

**NCA 2-595** **Stanford University** **1943**  
AEROASSIST FLIGHT EXPERIMENT (AFE) WAKE FLOW PREDICTION  
*Period* *Obligations*  
03/08/1991-09/30/1993 FY93: \$0 TOTAL: \$56,871  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R W MACCORMACK ARC/G S DEIWERT 41-Aero Engr

**NCA 2-680** **Stanford University** **1950**  
NEURAL NETWORKS FOR TIME SERIES PREDICTION  
*Period* *Obligations*  
01/21/1992-10/31/1992 FY93: \$0 TOTAL: \$25,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
B WIDROW ARC/C SCHULBACH 45-Elec Engr

**NASA'S UNIVERSITY PROGRAM  
CALIFORNIA (Continued)**

**NCA 2-684** **Stanford University** **1951**  
THE US-USSR MARS EXPLORATION INITIATIVE  
*Period* *Obligations*  
02/18/1992-10/31/1992 FY93: \$164 TOTAL: \$24,836  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
B LUSIGNAN ARC/G A BRIGGS 42-Astro Engr  
...../D DE VINCENZI

**NCA 2-685** **Stanford University** **1952**  
POLAR SUIT TECHNOLOGIES FOR ANTARTIC RESEARCHERS  
*Period* *Obligations*  
03/18/1992-06/20/1992 FY93: \$0 TOTAL: \$23,134  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
B ROTH ARC/T BUCKLEY 46-Mech Engr

**NCA 2-688** **Stanford University** **1953**  
PLANETARY REMOTE SENSING FIELD SCIENCE EVALUATION  
*Period* *Obligations*  
03/12/1992-01/31/1993 FY93: \$217 TOTAL: \$12,783  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
E LEVINHAL ARC/C STOKER 99-Multi-Discip  
D R LOWE ....C MCKAY

**NCA 2-693** **Stanford University** **1954**  
INVESTIGATION OF THE SCALES OF TURBULENCE IN HYPER SONIC  
RAREFIED FLOW  
*Period* *Obligations*  
03/10/1992-03/31/1994 FY93: \$37,769 TOTAL: \$71,295  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
D BAGANOFF ARC/W J FEIEREISEN 41-Aero Engr  
S LELE ....G S DEIWERT

**NCA 2-700** **Stanford University** **1955**  
PERFORMANCE STUDY ON THE INTEL IPSC/860 OF A PARTICLE  
SIMULATION FOR MODELING RAREFIED GAS FLOWS  
*Period* *Obligations*  
03/27/1992-03/31/1993 FY93: \$0 TOTAL: \$39,558  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
D BAGANOFF ARC/W J FEIEREISEN 41-Aero Engr  
...../G S DEIWERT

**NCA 2-704** **Stanford University** **1956**  
THE INFLUENCE OF REDUCED GRAVITY ON HUMAN LOAD CAR-  
RYING CAPABILITY AND PREFERRED LOAD PLACEMENT  
*Period* *Obligations*  
03/30/1992-09/30/1993 FY93: \$0 TOTAL: \$40,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
B LUSIGNAN ARC/B WEBBON 46-Mech Engr  
...../B LUNA

**NCA 2-706** **Stanford University** **1957**  
DIODE LASER-BASED ABSORPTION DIAGNOSTICS FOR MEASU-  
REMENTS OF O<sub>2</sub> IN SHOCK TUNNEL FLOWS  
*Period* *Obligations*  
04/15/1992-04/14/1993 FY93: \$0 TOTAL: \$36,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R K HANSON ARC/J A CAVOLOWSKY 46-Mech Engr  
...../G S DEIWERT

**NCA 2-723** **Stanford University** **1958**  
ATOMIC RESONANCE RADIATION ENERGISTICS INVESTIGATION AS  
A DIAGNOSTIC METHOD FOR NON-EQUILIBRIUM HYP  
*Period* *Obligations*  
06/29/1992-06/30/1994 FY93: \$36,432 TOTAL: \$71,294  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
D BERSHADER ARC/S P SHARMA 41-Aero Engr  
...../G S DEIWERT

**NCA 2-748** **Stanford University** **1959**  
LONG BONE STRUCTURAL PROPERTIES FROM BONE  
DENSITOMETRY  
*Period* *Obligations*  
08/25/1992-06/13/1993 FY93: \$0 TOTAL: \$5,005  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
D CARTER ARC/R T WHALEN 46-Mech Engr

**NCA 2-752** **Stanford University** **1960**  
EXTENSION OF STATE-VECTOR SPLITTING TO THE NAVIER STOKES  
EQUATIONS  
*Period* *Obligations*  
09/25/1992-09/30/1994 FY93: \$29,068 TOTAL: \$29,068  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R W MACCORMACK ARC/T H PULLIAM 41-Aero Engr

**NCA 2-754** **Stanford University** **1961**  
MEAN VELOCITY AND TURBULENT STRESSES NEAR A THREE-  
DIMENSIONAL SEPARATION LINE.  
*Period* *Obligations*  
09/30/1992-09/30/1993 FY93: \$20,000 TOTAL: \$20,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J K EATON ARC/D A JOHNSON 46-Mech Engr

**NCA 2-765** **Stanford University** **1962**  
GRAPHICAL ANALYSIS OF UNSTEADY THREE-DIMENSIONAL SE-  
PARATED FLOWS  
*Period* *Obligations*  
03/18/1993-12/31/1994 FY93: \$40,000 TOTAL: \$40,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
L HESSELINK ARC/L SCHIFF 41-Aero Engr

**NCA 2-767** **Stanford University** **1963**  
INTERNAL WELD DEFECTS: RESIDUAL STRESS FIELDS AND  
EFFECT ON FATIGUE LIFETIME  
*Period* *Obligations*  
11/16/1992-11/15/1994 FY93: \$80,000 TOTAL: \$80,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
D NELSON ARC/H NELSON 46-Mech Engr

**NCA 2-768** **Stanford University** **1964**  
STANFORD-AMES GLOBAL CHANGE STUDIES: BIOGEOCHEMICAL  
CYCLES  
*Period* *Obligations*  
11/16/1992-11/30/1994 FY93: \$28,389 TOTAL: \$28,389  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
W G ERNST ARC/P B RUSSELL 39-Env Sci, NEC



# **NASA'S UNIVERSITY PROGRAM CALIFORNIA (Continued)**

**NCA 2-781**                      **Stanford University**                      **1965**  
TENSOR FIELD VISUALIZATION  
*Period*    *Obligations*  
02/04/1993-01/31/1994                      FY93: \$40,000                      TOTAL: \$40,000  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
L HESSELINK                      ARC/A VAZIRI                      41-Aero Engr

**NCA 2-829**                      **Stanford University**                      **1972**  
DIODE LASER-BASED O2 ABSORPTION TECHNIQUE FOR MASS FLUX MEASUREMENT IN SCRAMJET ENGINES  
*Period*    *Obligations*  
06/29/1993-06/30/1995                      FY93: \$40,000                      TOTAL: \$40,000  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
R K HANSON                      ARC/J A CAVOLOWSKY                      41-Aero Engr  
      ..../G S DEIWERT

**NCA 2-802**                      **Stanford University**                      **1966**  
E235 SPACE SYSTEMS ENGINEERING 'THE ROAD TO MARS'  
*Period*    *Obligations*  
04/02/1993-01/01/1994                      FY93: \$12,574                      TOTAL: \$12,574  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
B LUSIGNAN                      ARC/G BRIGGS                      42-Astro Engr

**NCA 2-830**                      **Stanford University**                      **1973**  
AUTOMATIC ALGORITHM GENERATION FOR MAXWELL'S EQUATIONS  
*Period*    *Obligations*  
06/29/1993-06/30/1994                      FY93: \$30,000                      TOTAL: \$30,000  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
R W MACCORMACK                      ARC/P GOORJIAN                      41-Aero Engr

**NCA 2-805**                      **Stanford University**                      **1967**  
SIMPLIFIED AERODYNAMIC AND STRUCTURAL MODELING FOR OBLIQUE ALL-WING AIRCRAFT  
*Period*    *Obligations*  
04/02/1993-09/30/1993                      FY93: \$20,000                      TOTAL: \$20,000  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
I KROO                      ARC/J D PHILLIPS                      41-Aero Engr

**NCC 2-55**                      **Stanford University**                      **1974**  
RSCH AND TRNG ACTIVITIES FOR THE JOINT INSTITUTE FORAERONAUTICS AND ACOUSTICS  
*Period*    *Obligations*  
12/01/1979-09/30/1993                      FY93: \$598,000                      TOTAL: \$5,761,375  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
L ROBERTS                      ARC/C A SMITH                      41-Aero Engr  
      ..../J D MURPHY

**NCA 2-807**                      **Stanford University**                      **1968**  
INVESTIGATIONS WITH SHEAR STRESS SENSITIVE LIQUID CRYSTALS  
*Period*    *Obligations*  
04/02/1993-06/30/1995                      FY93: \$7,500                      TOTAL: \$7,500  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
R J MOFFAT                      ARC/D C REDA                      41-Aero Engr

**NCC 2-307**                      **Stanford University**                      **1975**  
CENTER OF EXCELLENCE IN MODEL-BASED HUMAN PERFORMANCE  
*Period*    *Obligations*  
07/01/1984-11/30/1993                      FY93: \$164,651                      TOTAL: \$2,093,577  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
B A WANDELL                      ARC/A J AHUMADA                      69-Psych, NEC  
      ..../A B WATSON

**NCA 2-810**                      **Stanford University**                      **1969**  
SOLVING GAS-LIQUID REACTION-EQUILIBRIUM PROCESSES WHICH DETERMINE OZONE DESTRUCTION  
*Period*    *Obligations*  
04/14/1993-08/31/1993                      FY93: \$6,516                      TOTAL: \$6,516  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
J OLIGER                      ARC/R CHATFIELD                      31-Atmos Sci

**NCC 2-333**                      **Stanford University**                      **1976**  
RESEARCH ON CONTROL OF SPACECRAFT MANIPULATOR SYST  
*Period*    *Obligations*  
11/01/1987-10/31/1993                      FY93: \$469,999                      TOTAL: \$4,559,799  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
R H CANNON                      ARC/B P HINE                      42-Astro Engr  
      ..../H LUM

**NCA 2-812**                      **Stanford University**                      **1970**  
QUANTITATIVE STUDY OF ENERGY EXCHANGE RATE IN HYPE RVELOCITY FLOWS OF SELECTED GASES  
*Period*    *Obligations*  
04/30/1993-03/31/1995                      FY93: \$39,609                      TOTAL: \$39,609  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
D BERSHADER                      ARC/S P SHARMA                      41-Aero Engr  
      ..../W J FEIEREISEN

**NCC 2-460**                      **Stanford University**                      **1977**  
CENTER FOR TURBULENCE RESEARCH  
*Period*    *Obligations*  
12/01/1986-09/30/1993                      FY93: \$1,499,735                      TOTAL: \$8,342,633  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
P MOIN                      ARC/M INOUYE                      46-Mech Engr  
W C REYNOLDS                      ..../H LOMAX

**NCA 2-828**                      **Stanford University**                      **1971**  
DIODE LASER-BASED ABSORPTION DIAGNOSTICS FOR MEASUREMENT OIF H2O IN SHOCK TUNNEL FLOWS  
*Period*    *Obligations*  
06/29/1993-06/30/1995                      FY93: \$40,000                      TOTAL: \$40,000  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
R K HANSON                      ARC/J A CAVOLOWSKY                      41-Aero Engr  
      ..../G S DEIWERT

**NCC 2-494**                      **Stanford University**                      **1978**  
INTELLIGENT COMMUNICATING AGENTS  
*Period*    *Obligations*  
08/01/1987-09/30/1992                      FY93: \$0                      TOTAL: \$2,295,764  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
N J NILSSON                      ARC/P E FRIEDLAND                      22-Computer Science  
      ..../M ZWEBEN

**NCC 2-514**                      **Stanford University**                      **1979**  
CONSERVATION OF DESIGN KNOWLEDGE  
*Period*    *Obligations*  
12/01/1987-09/30/1993                      FY93: \$149,740                      TOTAL: \$1,077,026  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
L LEIFER                      ARC/P E FRIEDLAND                      22-Computer Science  
      ..../W BROOKS

**NASA'S UNIVERSITY PROGRAM**  
**CALIFORNIA (Continued)**

**NCC 2-528** **Stanford University** **1980**  
 PROPOSAL TO STUDY THE VARIABLE GRAVITY FACILITY  
*Period Obligations*  
 02/01/1988-09/30/1991 FY93: \$0 TOTAL: \$294,929  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J D POWELL ARC/L G LEMKE 42-Astro Engr

**NCC 2-5001** **Stanford University** **1987**  
 MEAN VELOCITY AND TURBULENT STRESS NEAR THE WALL IN A  
 THREE-DIMENSIONAL BOUNDARY LAYER  
*Period Obligations*  
 09/28/1993-09/30/1994 FY93: \$10,000 TOTAL: \$10,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J EATON ARC/D A JOHNSON 41-Aero Engr

**NCC 2-537** **Stanford University** **1981**  
 DEVELOPMENT OF A REUSABLE KNOWLEDGE BASE FOR SPACE  
 APPLICATIONS  
*Period Obligations*  
 11/01/1987-10/31/1993 FY93: \$218,040 TOTAL: \$1,876,762  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 B G BUCHANAN ARC/P E FRIEDLAND 22-Computer Science  
 E A FEIGENBAUM ....M FREEMAN

**NCC 2-5002** **Stanford University** **1988**  
 FOUNDATION OF THE BLADE-VORTEX NOISE GENERATION PH  
 ENOMENON: EXPERIMENT AND COMPUTATION  
*Period Obligations*  
 09/28/1993-09/30/1994 FY93: \$25,079 TOTAL: \$25,079  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D BERSHADER ARC/C TUNG 41-Aero Engr

**NCC 2-683** **Stanford University** **1982**  
 NONLINEAR AERODYNAMICS AND THE DESIGN OF WING TIP S  
*Period Obligations*  
 07/09/1990-03/31/1993 FY93: \$0 TOTAL: \$184,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 I M KROO ARC/M D MADSON 41-Aero Engr  
 S C SMITH ....L L ERICKSON

**NGL 5-20243** **Stanford University** **1989**  
 REFINED METHODS OF AEROELASTIC ANALYSIS AND  
 OPTIMIZATION.  
*Period Obligations*  
 08/14/1967-08/31/1993 FY93: \$0 TOTAL: \$389,135  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 H ASHLEY LARC/R V DOGGETT JR 41-Aero Engr

**NCC 2-721** **Stanford University** **1983**  
 THE STRUCTURE, FACIES AND DEPOSITION OF SILICEOUS S INTER  
 AROUND THERMAL SPRINGS: IMPLICATIONS FOR..  
*Period Obligations*  
 07/03/1991-06/30/1994 FY93: \$51,361 TOTAL: \$156,066  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D R LOWE ARC/D J DES MARAIS 32-Geological Sci  
 ....S CHANG

**NGT 00-030-014** **Stanford University** **1990**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
 11/05/1990-12/31/1992 FY93: \$0 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J K HOLEN HQ/G ASRAR 33-Oceanography

**NCC 2-749** **Stanford University** **1984**  
 KNOWLEDGE-ASSISTED SOFTWARE ENGINEERING (KASE) AND D  
 DEVELOPMENT OF A KASE ENVIRONMENT  
*Period Obligations*  
 03/02/1992-09/30/1993 FY93: \$80,000 TOTAL: \$169,612  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 E A FEIGENBAUM ARC/P E FRIEDLAND 22-Computer Science  
 R FIRES

**NGT 00-030-051** **Stanford University** **1991**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
 09/09/1991-08/31/1993 FY93: \$0 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A R TOWNSEND HQ/D M BUTLER 39-Env Sci, NEC  
 P VITOUSEK ....G S WILSON

**NCC 2-777** **Stanford University** **1985**  
 COLOR IMAGE PROCESSING FOR FLAT PANEL VISUAL DISPL AY  
 MODLEING  
*Period Obligations*  
 12/16/1992-10/31/1993 FY93: \$160,000 TOTAL: \$160,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A M PETERSON ARC/J O LARIMER 29-Math/Cmputer,NEC  
 ....B R SMITH

**NGT 00-030-078** **Stanford University** **1992**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
 09/09/1991-08/31/1994 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M G BAC HQ/D M BUTLER 39-Env Sci, NEC  
 S BRASSILL ....G S WILSON

**NCC 2-778** **Stanford University** **1986**  
 ADAPTIATION AND PLASTICITY IN BIOLOGICAL SYSTEM  
*Period Obligations*  
 12/16/1992-08/31/1994 FY93: \$105,104 TOTAL: \$105,104  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M W FELDMAN ARC/M D ROSS 51-Biological Sci

**NGT 00-030-115** **Stanford University** **1993**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
 11/02/1992-08/31/1994 FY93: \$44,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 G K YEH HQ/G ASRAR 22-Computer Science  
 ....D M BUTLER

**NGT 00-030-155** **Stanford University** **1994**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
 10/27/1992-08/31/1993 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R FREIFELDER HQ/G ASRAR 33-Oceanography  
 ....D M BUTLER

**NASA'S UNIVERSITY PROGRAM  
CALIFORNIA (Continued)**

**NGT 00-030-156** **Stanford University** **1995**  
NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period* *Obligations*  
11/27/1992-08/31/1993 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
V S INAN HQ/G ASRAR 99-Multi-Discip  
...../J S THEON

**NGT 00-050-747** **Stanford University** **2003**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period* *Obligations*  
09/17/1991-08/14/1993 FY93: \$0 TOTAL: \$39,860  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
G M HOMSY ARC/M MOORE 41-Aero Engr

**NGT 00-050-359** **Stanford University** **1996**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period* *Obligations*  
07/27/1988-08/31/1992 FY93: \$0 TOTAL: \$58,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
A E BRYSON HQ/F C OWENS 41-Aero Engr

**NGT 00-050-774** **Stanford University** **2004**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period* *Obligations*  
08/16/1991-06/30/1994 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
A B WALKER HQ/F C OWENS 13-Physics

**NGT 00-050-431** **Stanford University** **1997**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period* *Obligations*  
07/26/1989-06/30/1992 FY93: \$0 TOTAL: \$62,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
G F FRANKLIN HQ/F C OWENS 45-Elec Engr

**NGT 00-050-790** **Stanford University** **2005**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period* *Obligations*  
06/10/1991-06/30/1994 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
U S INAN HQ/F C OWENS 45-Elec Engr

**NGT 00-050-445** **Stanford University** **1998**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period* *Obligations*  
08/02/1989-06/30/1993 FY93: \$0 TOTAL: \$106,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
P BRADSHAW HQ/F C OWENS 46-Mech Engr

**NGT 00-050-856** **Stanford University** **2006**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period* *Obligations*  
09/19/1991-09/14/1994 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J A LIPA HQ/J K ALEXANDER 13-Physics

**NGT 00-050-511** **Stanford University** **1999**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period* *Obligations*  
09/20/1989-08/31/1992 FY93: \$0 TOTAL: \$62,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
G F FRANKLIN HQ/F C OWENS 46-Mech Engr

**NGT 00-050-895** **Stanford University** **2007**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period* *Obligations*  
05/15/1992-07/09/1994 FY93: \$5,500 TOTAL: \$27,500  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
P VITOUSEK ARC/M MOORE 51-Biological Sci

**NGT 00-050-564** **Stanford University** **2000**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period* *Obligations*  
08/02/1990-06/30/1993 FY93: \$0 TOTAL: \$66,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
D R CARTER HQ/F C OWENS 46-Mech Engr

**NGT 00-050-938** **Stanford University** **2008**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period* *Obligations*  
07/24/1992-06/30/1993 FY93: \$22,000 TOTAL: \$44,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R WAGONER HQ/J K ALEXANDER 13-Physics

**NGT 00-050-642** **Stanford University** **2001**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period* *Obligations*  
07/24/1990-09/29/1993 FY93: \$0 TOTAL: \$66,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
B WIDROW HQ/F C OWENS 45-Elec Engr

**NGT 00-050-964** **Stanford University** **2009**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period* *Obligations*  
06/16/1992-07/31/1994 FY93: \$22,000 TOTAL: \$44,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
M J FLYNN HQ/P HUNTER 22-Computer Science

**NGT 00-050-680** **Stanford University** **2002**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period* *Obligations*  
10/12/1990-09/30/1994 FY93: \$22,000 TOTAL: \$88,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
U INAN LERC/F MONTEGANI 45-Elec Engr

**NGT 00-051-028** **Stanford University** **2010**  
GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period* *Obligations*  
06/22/1993-06/30/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R J MOFFAT ARC/M MOORE 46-Mech Engr

**NASA'S UNIVERSITY PROGRAM  
CALIFORNIA (Continued)**

**NGT 00-051-056**      **Stanford University**      **2011**  
GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period*      *Obligations*  
05/25/1993-06/30/1994      FY93: \$22,000      TOTAL: \$22,000  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
R H CANNON      JSC/S GOLDSTEIN      41-Aero Engr

**NGT 00-070-194**      **Stanford University**      **2018**  
NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
MINORITY FOCUS PROGRAM  
*Period*      *Obligations*  
09/17/1990-09/14/1993      FY93: \$0      TOTAL: \$66,000  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
R V WAGONER      HQ/F C OWENS      13-Physics

**NGT 00-070-078**      **Stanford University**      **2012**  
NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
MINORITY FOCUS PROGRAM  
*Period*      *Obligations*  
04/29/1988-03/31/1992      FY93: \$0      TOTAL: \$80,000  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
R W MACCORMACK      HQ/F C OWENS      41-Aero Engr

**NGT 00-070-244**      **Stanford University**      **2019**  
NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
MINORITY FOCUS PROGRAM  
*Period*      *Obligations*  
08/12/1991-08/31/1992      FY93: \$0      TOTAL: \$22,000  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
M J FLYNN      HQ/F C OWENS      22-Computer Science

**NGT 00-070-116**      **Stanford University**      **2013**  
NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
MINORITY FOCUS PROGRAM  
*Period*      *Obligations*  
03/17/1989-09/30/1994      FY93: \$33,000      TOTAL: \$95,000  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
P M BANKS      HQ/F C OWENS      41-Aero Engr

**NGT 00-070-249**      **Stanford University**      **2020**  
NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
MINORITY FOCUS PROGRAM  
*Period*      *Obligations*  
08/18/1992-08/31/1994      FY93: \$22,000      TOTAL: \$44,000  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
G TYLER      HQ/P HUNTER      45-Elec Engr

**NGT 00-070-178**      **Stanford University**      **2014**  
NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
MINORITY FOCUS PROGRAM  
*Period*      *Obligations*  
07/09/1990-06/30/1994      FY93: \$22,000      TOTAL: \$88,000  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
V PETROSIAN      HQ/F C OWENS      13-Physics

**NGT 00-070-275**      **Stanford University**      **2021**  
NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
MINORITY FOCUS PROGRAM  
*Period*      *Obligations*  
06/29/1992-06/30/1993      FY93: \$0      TOTAL: \$22,000  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
L LEIFER      ARC/M MOORE      46-Mech Engr

**NGT 00-070-180**      **Stanford University**      **2015**  
NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
MINORITY FOCUS PROGRAM  
*Period*      *Obligations*  
05/24/1990-05/31/1992      FY93: \$0      TOTAL: \$44,000  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
L ROBERTS      HQ/F C OWENS      41-Aero Engr

**NGT 00-070-276**      **Stanford University**      **2022**  
NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
MINORITY FOCUS PROGRAM  
*Period*      *Obligations*  
06/26/1992-06/30/1993      FY93: \$0      TOTAL: \$22,000  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
R K HANSON      ARC/S M MOORE      46-Mech Engr

**NGT 00-070-182**      **Stanford University**      **2016**  
NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
MINORITY FOCUS PROGRAM  
*Period*      *Obligations*  
08/29/1990-05/31/1993      FY93: \$0      TOTAL: \$66,000  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
A WALKER      HQ/F C OWENS      13-Physics

**NGT 00-070-277**      **Stanford University**      **2023**  
NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
MINORITY FOCUS PROGRAM  
*Period*      *Obligations*  
06/26/1992-06/30/1994      FY93: \$22,000      TOTAL: \$44,000  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
B CANTWELL      ARC/M MOORE      41-Aero Engr

**NGT 00-070-188**      **Stanford University**      **2017**  
NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
MINORITY FOCUS PROGRAM  
*Period*      *Obligations*  
08/08/1990-07/31/1993      FY93: \$0      TOTAL: \$66,000  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
J F VESECKY      HQ/F C OWENS      45-Elec Engr

**NGT 00-070-284**      **Stanford University**      **2024**  
NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
MINORITY FOCUS PROGRAM  
*Period*      *Obligations*  
06/26/1992-08/31/1994      FY93: \$22,000      TOTAL: \$44,000  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
A B WALKER      GSFC/G SOFFEN      13-Physics

**NASA'S UNIVERSITY PROGRAM  
CALIFORNIA (Continued)**

**NGT 00-070-330 Stanford University 2025**  
NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
MINORITY FOCUS PROGRAM

Period	Obligations	
07/07/1993-06/30/1994	FY93: \$22,000	TOTAL: \$22,000
Prin. Invest.	NASA Tech. Officer	CASE Category
D BERSHADER	HQ/D K RUSSELL	41-Aero Engr

**NGT 00-070-340 Stanford University 2026**  
NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
MINORITY FOCUS PROGRAM

Period	Obligations	
06/30/1993-06/30/1994	FY93: \$22,000	TOTAL: \$22,000
Prin. Invest.	NASA Tech. Officer	CASE Category
A A PETERSON	HQ/D K RUSSELL	45-Elec Engr

**NGT 00-070-342 Stanford University 2027**  
NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
MINORITY FOCUS PROGRAM

Period	Obligations	
06/29/1993-06/30/1994	FY93: \$22,000	TOTAL: \$22,000
Prin. Invest.	NASA Tech. Officer	CASE Category
R SHACHTER	HQ/D K RUSSELL	22-Computer Science

**NGT 00-070-344 Stanford University 2028**  
NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
MINORITY FOCUS PROGRAM

Period	Obligations	
07/14/1993-08/14/1994	FY93: \$22,000	TOTAL: \$22,000
Prin. Invest.	NASA Tech. Officer	CASE Category
A PETERSON	HQ/D K RUSSELL	45-Elec Engr

**NGT 00-070-348 Stanford University 2029**  
NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
MINORITY FOCUS PROGRAM

Period	Obligations	
08/12/1993-06/30/1994	FY93: \$22,000	TOTAL: \$22,000
Prin. Invest.	NASA Tech. Officer	CASE Category
O KHATIB	HQ/D K RUSSELL	41-Aero Engr

**NGT 00-070-361 Stanford University 2030**  
NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
MINORITY FOCUS PROGRAM

Period	Obligations	
08/31/1993-08/31/1994	FY93: \$20,500	TOTAL: \$20,500
Prin. Invest.	NASA Tech. Officer	CASE Category
J POWELL	HQ/D K RUSSELL	46-Mech Engr

**NGT 00-070-364 Stanford University 2031**  
NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
MINORITY FOCUS PROGRAM

Period	Obligations	
09/11/1993-09/30/1994	FY93: \$22,000	TOTAL: \$22,000
Prin. Invest.	NASA Tech. Officer	CASE Category
A WALKER	HQ/D K RUSSELL	13-Physics

**NGT 00-090-112 Stanford University 2032**  
UNDERGRADUATE STUDENT RESEARCHERS PROGRAM

Period	Obligations	
09/17/1992-08/14/1993	FY93: \$0	TOTAL: \$12,000
Prin. Invest.	NASA Tech. Officer	CASE Category
N LOZANO	HQ/D K RUSSELL	99-Multi-Discip

**NGT 00-090-222 Stanford University 2033**  
UNDERGRADUATE STUDENT RESEARCHERS (UMF) PROGRAM

Period	Obligations	
09/14/1993-08/14/1994	FY93: \$12,000	TOTAL: \$12,000
Prin. Invest.	NASA Tech. Officer	CASE Category
N LOZANO	HQ/D K RUSSELL	99-Multi-Discip

**NGT 5-20412 Stanford University 2034**  
A SUMMER PROGRAM OF NASA SUMMER FACULTY FELLOWSHIPS  
\$171,216

Period	Obligations	
12/16/1969-03/31/1994	FY93: \$414,218	TOTAL: \$6,372,816
Prin. Invest.	NASA Tech. Officer	CASE Category
D BERSHADER	HQ/A S MCGEE	49-Engr, NEC
J MAYERS	....E T SCHWARTZ	

**NSG-5131 Stanford University 2035**  
SPECTROSCOPY OF COSMIC X RAY SOURCES

Period	Obligations	
11/15/1976-12/31/1993	FY93: \$225,000	TOTAL: \$3,419,000
Prin. Invest.	NASA Tech. Officer	CASE Category
A B WALKER	GSFC/L J EARLY	13-Physics
J H UNDERWOOD	....R H PLESS	

**NAG 5-680 Univ. of California 2036**  
THE BERKELEY COLLIDING PHOTOIONIZATION SOLAR  
SPECTROMETER

Period	Obligations	
08/21/1991-06/30/1993	FY93: \$0	TOTAL: \$100,000
Prin. Invest.	NASA Tech. Officer	CASE Category
S CHAKRABARTI	GSFC/L J EARLY	13-Physics
	....R H PLESS	

**NAG 5-1588 Univ. of California 2037**  
THE X-RAY ATMOSPHERE OF GIANT LYMAN GALAXIES AND THEIR  
ENVIRONMENTS AT 1.1

Period	Obligations	
05/28/1991-06/30/1992	FY93: \$0	TOTAL: \$13,000
Prin. Invest.	NASA Tech. Officer	CASE Category
H SPINRAD	GSFC/R PETRE	11-Astronomy

**NAGW 2567 Univ. of California 2038**  
THE ALEXIS SCIENCE SUPPORT CENTER

Period	Obligations	
08/02/1991-09/30/1993	FY93: \$0	TOTAL: \$152,000
Prin. Invest.	NASA Tech. Officer	CASE Category
H W SIEGMUND	HQ/F J GIOVANE	11-Astronomy
	....G R RIEGLER	

**NAG 1-879 University of California - Berkeley 2039**  
REQUIREMENTS OF WALL/GAS INTERACTION STUDIES TO BE  
SUPPORTED BY TETHERED

Period	Obligations	
04/27/1988-07/31/1992	FY93: \$3,226	TOTAL: \$90,964
Prin. Invest.	NASA Tech. Officer	CASE Category
F C HURLBUT	LARC/B T UPCHURCH	41-Aero Engr

**NASA'S UNIVERSITY PROGRAM**  
**CALIFORNIA (Continued)**

**NAG 1-1452 University of California - Berkeley 2040**  
 STUDIES OF AEROTHERMODYNAMIC EFFECT FROM SEDS  
 SATELLITE DATA NLPN 91-1222  
*Period Obligations*  
 09/16/1992-07/15/1993 FY93: \$0 TOTAL: \$28,467  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 F C HURLBUT LARC/R DELOACH 42-Astro Engr

**NAG 2-208 University of California - Berkeley 2041**  
 SPECTROSCOPIC OBSERVATION OF INFRARED LINES NORMALLY  
 OBSCURED BY ATMOSPHERIC ABSORPTION  
*Period Obligations*  
 11/01/1987-10/31/1994 FY93: \$342,860 TOTAL: \$1,826,734  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 C H TOWNES ARC/L C HAUGHNEY 11-Astronomy  
 R GENZEL

**NAG 2-243 University of California - Berkeley 2042**  
 CONTROL SYSTEMS DESIGN METHODOLOGIES IN COMPUTER  
 AIDED DESIGN ENVIRONMENT  
*Period Obligations*  
 10/01/1983-12/31/1993 FY93: \$30,001 TOTAL: \$686,719  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S S SASTRY ARC/G MEYER 49-Engr, NEC  
 C DESOER  
 E POLAK

**NAG 2-254 University of California - Berkeley 2043**  
 A MULTI-TRANSITION STUDY OF EXCITED CO FROM MOLECULAR  
 CLOUD CORES WITH A 200 M-500 M HETERODYN  
*Period Obligations*  
 10/01/1983-09/30/1991 FY93: \$0 TOTAL: \$928,506  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A L BETZ ARC/C D LAUGHLIN 11-Astronomy  
 ....H A HENDRIKS

**NAG 2-572 University of California - Berkeley 2044**  
 THE ROLE OF CALCITE SKELETAL MATRIX PROTEINS IN B  
 IOMINERALIZATION  
*Period Obligations*  
 05/09/1989-12/31/1993 FY93: \$60,000 TOTAL: \$295,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 F H WILT ARC/E M HOLTON 51-Biological Sci

**NAG 2-591 University of California - Berkeley 2045**  
 DISKLESS SUPERCOMPUTERS; SCALABLE, RELIABLE I/O FOR THE  
 TERA-OP TECHNOLOGY BASE  
*Period Obligations*  
 07/27/1989-06/30/1992 FY93: \$0 TOTAL: \$2,873,205  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R H KATZ ARC/D E TWETEN 22-Computer Science

**NAG 2-652 University of California - Berkeley 2046**  
 OPTIC FLOW, LOCOMOTION CONTROL, AND DEPTH PERCEPT ION  
*Period Obligations*  
 07/07/1990-08/31/1992 FY93: \$0 TOTAL: \$59,135  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M S BANKS ARC/C T BENNETT 41-Aero Engr

**NAG 2-711 University of California - Berkeley 2047**  
 ANTENNA COUPLED MICROBOLOMETER  
*Period Obligations*  
 07/16/1991-02/28/1994 FY93: \$45,000 TOTAL: \$133,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 P L RICHARDS ARC/C R MCCREIGHT 13-Physics  
 ....R E MCMURRAY

**NAG 2-763 University of California - Berkeley 2048**  
 4.4BSD OPERATING SYSTEM PROJECT  
*Period Obligations*  
 03/10/1992-01/31/1993 FY93: \$0 TOTAL: \$100,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D FERRARI ARC/T S WOODROW 22-Computer Science  
 M K MCKUSICK

**NAG 2-858 University of California - Berkeley 2049**  
 A SEARCH FOR PURE CARBON CLUSTERS IN THE ISM  
*Period Obligations*  
 08/17/1993-11/30/1994 FY93: \$23,500 TOTAL: \$23,500  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R J SAYKALLY ARC/C D LAUGHLIN 11-Astronomy  
 ....C M GILLESPIE

**NAG 3-443 University of California - Berkeley 2050**  
 FUNDAMENTAL STUDY OF SMOLDERING WITH EMPHASIS ON  
 EXPERIMENTAL DESIGN FOR ZERO G  
*Period Obligations*  
 06/21/1983-12/11/1991 FY93: \$3 TOTAL: \$469,878  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 P J PAGNI LERC/D P STOCKER 49-Engr, NEC  
 A C ....S L OLSON  
 FERNANDEZ-PELLO

**NAG 3-1143 University of California - Berkeley 2051**  
 FLUID INTERFACE BEHAVIOR UNDER LOW-AND ZERO-GRAVIT Y  
 CONDITIONS  
*Period Obligations*  
 03/29/1990-09/30/1993 FY93: \$0 TOTAL: \$270,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 P CONCUS LERC/M M WEISLOGEL 21-Mathematics

**NAG 3-1252 University of California - Berkeley 2052**  
 A FUNDAMENTAL STUDY OF SMOLDERING COMBUSTION IN MIC  
 ROGRAVITY  
*Period Obligations*  
 03/15/1991-02/28/1994 FY93: \$163,370 TOTAL: \$478,822  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A C LERC/S OLSON 49-Engr, NEC  
 FERNANDEZ-PELLO  
 P J PAGNI

**NAG 5-375 University of California - Berkeley 2053**  
 ELECTRIC FIELD STUDIES  
*Period Obligations*  
 10/01/1983-11/30/1991 FY93: \$0 TOTAL: \$1,257,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 F S MOZER GSFC/G BULLOCK 31-Atmos Sci  
 C A CATTELL  
 J R WYGANT

**NASA'S UNIVERSITY PROGRAM  
CALIFORNIA (Continued)**

**NAG 5-376 University of California - Berkeley 2054**  
ENERGETIC PARTICLE AND X-RAY SLACTIES  
*Period Obligations*  
10/01/1983-11/30/1992 FY93: \$0 TOTAL: \$1,514,445  
*Prin. Invest. NASA Tech. Officer CASE Category*  
K A ANDERSON GSFC/G BULLOCK 31-Atmos Sci  
R P LIN  
S KANE

**NAG 5-657 University of California - Berkeley 2055**  
STUDIES FOR 'FAST' SMALL EXPLORER MISSION  
*Period Obligations*  
07/01/1989-12/31/1991 FY93: \$0 TOTAL: \$700,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
C W CARLSON GSFC/L J EARLY 13-Physics  
..../R H PLESS

**NAG 5-665 University of California - Berkeley 2056**  
PARTICIPATION IN GEMINI ROCKET PROGRAM  
*Period Obligations*  
05/04/1990-07/31/1992 FY93: \$0 TOTAL: \$130,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
S CHAKRABARTI WFF/L J EARLY 13-Physics  
..../R H PLESS

**NAG 5-696 University of California - Berkeley 2057**  
A PROPOSAL TO FLY THE EUV/FUV SPECTROMETER ON ORFEUS  
FOR ASTRO-SPAS I AND II  
*Period Obligations*  
12/18/1992-10/31/1993 FY93: \$425,000 TOTAL: \$425,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
C S BOWYER GSFC/L J EARLY 13-Physics  
..../R H PLESS

**NAG 5-959 University of California - Berkeley 2058**  
ELECTRON REFLECTOMETER ADDITION TO THE MAGNETIC FIELDS  
INVESTIGATION ON THE MARS OBSERVER MISSION  
*Period Obligations*  
08/01/1987-03/31/1994 FY93: \$200,000 TOTAL: \$1,050,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R P LIN GSFC/M H ACUNA 13-Physics  
C F MCKEE

**NAG 5-1062 University of California - Berkeley 2059**  
DISK ACTIVITY IN T TAURI STARS  
*Period Obligations*  
08/01/1988-02/28/1993 FY93: \$0 TOTAL: \$104,225  
*Prin. Invest. NASA Tech. Officer CASE Category*  
G BASRI GSFC/D WEST 11-Astronomy

**NAG 5-1123 University of California - Berkeley 2060**  
ASTROMAG SUPERCONDUCTING MAGNET AND CRYROSTAT  
SUPPORT  
*Period Obligations*  
03/01/1989-12/31/1991 FY93: \$0 TOTAL: \$591,500  
*Prin. Invest. NASA Tech. Officer CASE Category*  
G F SMOOT GSFC/J ORMES 11-Astronomy

**NAG 5-1230 University of California - Berkeley 2061**  
STUDIES OF THE HIGH-LATITUDE INTERSTELLA MEDIUM  
*Period Obligations*  
08/04/1989-10/31/1994 FY93: \$89,351 TOTAL: \$195,090  
*Prin. Invest. NASA Tech. Officer CASE Category*  
C HEILES GSFC/D WEST 11-Astronomy

**NAG 5-1318 University of California - Berkeley 2062**  
RESERACH USING THE COBE SATELLITE  
*Period Obligations*  
12/14/1989-12/31/1993 FY93: \$265,000 TOTAL: \$1,574,400  
*Prin. Invest. NASA Tech. Officer CASE Category*  
G F SMOOT GSFC/J MATHER 11-Astronomy

**NAG 5-1360 University of California - Berkeley 2063**  
SPACE DISTRIBUTION OF IRAS GALAXIES  
*Period Obligations*  
04/12/1990-05/31/1994 FY93: \$110,000 TOTAL: \$190,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J SILK GSFC/D WEST 11-Astronomy

**NAG 5-1407 University of California - Berkeley 2064**  
ORBITAL MODULATION IN QUIESCENT DWARF NOVAE  
*Period Obligations*  
09/11/1990-12/31/1991 FY93: \$17 TOTAL: \$8,683  
*Prin. Invest. NASA Tech. Officer CASE Category*  
C S BOWYER GSFC/D WEST 11-Astronomy

**NAG 5-1507 University of California - Berkeley 2065**  
MODELING OF DYNAMICS EXPLORER UV IMAGES  
*Period Obligations*  
03/27/1991-04/14/1993 FY93: \$0 TOTAL: \$123,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J CHAKRABARTI GSFC/G D BULLOCK 19-Phys Sci, NEC

**NAG 5-1523 University of California - Berkeley 2066**  
ISEE/AMPT STUDIES OF THE RELATIONSHIP OF FLUX TRA NSFER  
EVENTS AND SURFACE WAVES AND OF SUBSTORM...  
*Period Obligations*  
04/03/1991-04/14/1994 FY93: \$39,700 TOTAL: \$108,300  
*Prin. Invest. NASA Tech. Officer CASE Category*  
C A CATTELL GSFC/G D BULLOCK 19-Phys Sci, NEC

**NAG 5-1559 University of California - Berkeley 2067**  
STEREOSCOPIC OBSERVATIONS OF SOLAR FLARE X-RAY AND  
GAMMA-RAY SOURCES  
*Period Obligations*  
04/17/1991-08/14/1993 FY93: \$24,800 TOTAL: \$72,500  
*Prin. Invest. NASA Tech. Officer CASE Category*  
K C HURLEY GSFC/J P NORRIS 11-Astronomy  
..../D A KNIFFEN

**NAG 5-1560 University of California - Berkeley 2068**  
THIRD INTERPLANETARY NETWORK FOR GAMMA RAY BURSTER S  
*Period Obligations*  
04/17/1991-10/14/1993 FY93: \$59,800 TOTAL: \$119,800  
*Prin. Invest. NASA Tech. Officer CASE Category*  
K C HURLEV GSFC/J P NORRIS 11-Astronomy  
..../D A KNIFFEN

**NAG 5-1607 University of California - Berkeley 2069**  
SCIENCE VERIFICATION AND GUARANTEED-TIME OBSERVATI ONS  
WITH THE HST  
*Period Obligations*  
05/21/1991-10/31/1993 FY93: \$281,299 TOTAL: \$708,192  
*Prin. Invest. NASA Tech. Officer CASE Category*  
I KING GSFC/S SOBIESKI 11-Astronomy

**NASA'S UNIVERSITY PROGRAM  
CALIFORNIA (Continued)**

**NAG 5-1640 University of California - Berkeley 2070**  
SUPPORTING STUDIES FOR THE TRANSIENT GAMMA-RAY SPECTROMETER (TRRS) ABOARD WIND

Period	Obligations	
06/28/1991-06/30/1994	FY93: \$1,572	TOTAL: \$11,522
Prin. Invest.	NASA Tech. Officer	CASE Category
K C HURLEY	GSFC/B TEEGARDEN	11-Astronomy

**NAG 5-1818 University of California - Berkeley 2077**  
IS THE X-RAY CONTINUUM FROM RADIO-LOUD QUASARS

Period	Obligations	
10/15/1991-10/14/1993	FY93: \$0	TOTAL: \$55,000
Prin. Invest.	NASA Tech. Officer	CASE Category
H SPINRAD	GSFC/R PETRE	11-Astronomy

**NAG 5-1677 University of California - Berkeley 2071**  
X-RAY OBSERVATIONS OF THE ECLIPSING MILLISECOND PULSAR

Period	Obligations	
08/15/1991-08/14/1992	FY93: \$0	TOTAL: \$2,500
Prin. Invest.	NASA Tech. Officer	CASE Category
A S FRUCHTER	GSFC/R PETRE	11-Astronomy

**NAG 5-1851 University of California - Berkeley 2078**  
DETECTION OF A QUIESCENT X-RAY COUNTERPART OF TWO NEWLY DISCOVERED GAMMA RAY BURSTS

Period	Obligations	
12/18/1991-05/31/1993	FY93: \$0	TOTAL: \$5,000
Prin. Invest.	NASA Tech. Officer	CASE Category
K C HURLEY	GSFC/R PETRE	11-Astronomy

**NAG 5-1688 University of California - Berkeley 2072**  
SOFT X-RAY SPECTROSCOPY OF ACTIVE GALAXIES IN DIRECTION OF LOW NEUTRAL HYDROGEN

Period	Obligations	
08/26/1991-08/31/1992	FY93: \$0	TOTAL: \$11,000
Prin. Invest.	NASA Tech. Officer	CASE Category
C S BOWYER	GSFC/R PETRE	11-Astronomy

**NAG 5-1892 University of California - Berkeley 2079**  
SOFT X-RAY SPECTROSCOPY OF INTERMEDIATE POLARS (UC BSSL 1689/92)

Period	Obligations	
02/10/1992-02/14/1994	FY93: \$23,000	TOTAL: \$29,000
Prin. Invest.	NASA Tech. Officer	CASE Category
S KAHN	GSFC/R PETRE	11-Astronomy

**NAG 5-1689 University of California - Berkeley 2073**  
AN X-RAY STUDY OF CATALYTIC VARIABLES DISCOVERED WITH THE PALOMAR GREEN SURVEY

Period	Obligations	
07/15/1991-07/14/1993	FY93: \$0	TOTAL: \$30,000
Prin. Invest.	NASA Tech. Officer	CASE Category
S M KAHN	GSFC/R PETRE	11-Astronomy

**NAG 5-1988 University of California - Berkeley 2080**  
GLOBAL ANALYSIS OF THE VOYAGER UVS FAR UV AND EUV SPECTRAL CATALOGUE

Period	Obligations	
06/05/1992-06/14/1994	FY93: \$37,400	TOTAL: \$73,000
Prin. Invest.	NASA Tech. Officer	CASE Category
CARONE	GSFC/D WEST	11-Astronomy

**NAG 5-1727 University of California - Berkeley 2074**  
DETECTION OF GAMMA RAY BURSTS AND OPTICAL TRANSIENT COUNTERPARTS AND NEUTRON STARS

Period	Obligations	
10/15/1991-10/14/1993	FY93: \$0	TOTAL: \$18,000
Prin. Invest.	NASA Tech. Officer	CASE Category
K C HURLEY	GSFC/R PETRE	11-Astronomy

**NAG 5-2009 University of California - Berkeley 2081**  
A SUPERNOVA ALERT IN NEARBY IRAS GALAXIES FOR THE GAMMA RAY OBSERVATORY

Period	Obligations	
07/15/1992-07/14/1994	FY93: \$42,000	TOTAL: \$70,000
Prin. Invest.	NASA Tech. Officer	CASE Category
R D TRIPP	GSFC/J P NORRIS	11-Astronomy
	....N WHITE	

**NAG 5-1800 University of California - Berkeley 2075**  
(1) UV AND OPTICAL OBS., OF LINERS AND (2) UV OBS., OF WOLF-RAYET STARS IN NGC 4214

Period	Obligations	
09/13/1991-09/14/1992	FY93: \$0	TOTAL: \$27,978
Prin. Invest.	NASA Tech. Officer	CASE Category
A FILLIPPENKO	GSFC/D WEST	11-Astronomy

**NAG 5-2015 University of California - Berkeley 2082**  
AN IRAS-BASED SEARCH FOR DUSTY LATE WC-TYPE WOLF-RAYET STARS

Period	Obligations	
07/15/1992-04/14/1994	FY93: \$0	TOTAL: \$47,100
Prin. Invest.	NASA Tech. Officer	CASE Category
COHEN	GSFC/D WEST	11-Astronomy

**NAG 5-1805 University of California - Berkeley 2076**  
PRECISE ORBITAL PARAMETERS FOR THE WHITE DWARF COMPONENT OF THE BINARY FEIGE 24 FROM VELOCITY MEAS.

Period	Obligations	
09/17/1991-09/30/1992	FY93: \$0	TOTAL: \$22,000
Prin. Invest.	NASA Tech. Officer	CASE Category
S VENNES	GSFC/D WEST	11-Astronomy

**NAG 5-2020 University of California - Berkeley 2083**  
THEORETICAL STUDIES OF GAMMA RAY BURSTERS AND THE DIFFUSE GAMMA RAY BACKGROUND

Period	Obligations	
07/17/1992-07/31/1993	FY93: \$43,159	TOTAL: \$71,959
Prin. Invest.	NASA Tech. Officer	CASE Category
J I SILK	GSFC/J P NORRIS	11-Astronomy
	....N WHITE	



**NASA'S UNIVERSITY PROGRAM  
CALIFORNIA (Continued)**

**NAG 5-2067 University of California - Berkeley 2084**  
X-RAY OBSERVATIONS OF SELECTED LINERS  
*Period Obligations*  
08/05/1992-08/31/1993 FY93: \$0 TOTAL: \$7,700  
*Prin. Invest. NASA Tech. Officer CASE Category*  
A V FILIPPENKO GSFC/R PETRE 11-Astronomy

**NAG 5-2088 University of California - Berkeley 2085**  
SUPERNOVA REMNANT BLAST-WAVE INTERACTIONS WITH INT  
ERSTELLAR CLOUDS: CAST STUDIES FROM CYGNUS LOOP  
*Period Obligations*  
09/02/1992-11/14/1993 FY93: \$39,629 TOTAL: \$39,629  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J R GRAHAM GSFC/R PETRE 11-Astronomy

**NAG 5-2135 University of California - Berkeley 2086**  
HEAVY ELEMENTS ABUNDANCES IN HOT DA WHITE DWARFS: C,  
N, SI, AND FE  
*Period Obligations*  
11/09/1992-11/14/1993 FY93: \$5,940 TOTAL: \$5,940  
*Prin. Invest. NASA Tech. Officer CASE Category*  
C S BOWYER GSFC/D WEST 11-Astronomy

**NAG 5-2182 University of California - Berkeley 2087**  
A DEEP SEARCH FOR X-RAY EMISSION FROM SATURN  
*Period Obligations*  
01/26/1993-01/31/1994 FY93: \$10,000 TOTAL: \$10,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
H SPINRAD HQ/R PETRE 11-Astronomy

**NAG 5-2195 University of California - Berkeley 2088**  
THE X-RAY PROPERTIES OF GROUPS OF GALAXIES  
*Period Obligations*  
03/01/1993-02/28/1994 FY93: \$15,000 TOTAL: \$15,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
M DAVIS GSFC/R PETRE 11-Astronomy

**NAG 5-2304 University of California - Berkeley 2089**  
HIGH SPATIAL RESOLUTION INVESTIGATIONS OF MICROCHA NNEL  
PLATE IMAGERY PROPERTIES OF UV DETECTOR  
*Period Obligations*  
07/07/1993-06/30/1994 FY93: \$193,000 TOTAL: \$193,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
O H SIEGMUND GSFC/G SONNEBORN 11-Astronomy

**NAG 5-2351 University of California - Berkeley 2090**  
ELECTRON ACCELERATION IN SOLAR FLARES  
*Period Obligations*  
08/12/1993-08/14/1994 FY93: \$16,500 TOTAL: \$16,500  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R P LIN GSFC/J NORRIS 11-Astronomy  
...../N WHITE

**NAG 6-10 University of California - Berkeley 2091**  
BASIC GRANT AWARD  
*Period Obligations*  
11/01/1980-10/31/1993 FY93: \$180,000 TOTAL: \$2,792,949  
*Prin. Invest. NASA Tech. Officer CASE Category*  
C W CARLSON GSFC/L J EARLY 19-Phys Sci, NEC  
F S MOZER ...../R H PLESS  
K A ANDERSON

**NAG 8-830 University of California - Berkeley 2092**  
FGAMMA RAY AND HARD X-RAY  
*Period Obligations*  
04/17/1990-09/30/1993 FY93: \$800,000 TOTAL: \$4,690,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R P LIN MSFC/J M DAVIS 39-Env Sci, NEC

**NAGW 66 University of California - Berkeley 2093**  
TO THE COBE SATELLITE MISSION  
*Period Obligations*  
07/01/1980-05/31/1992 FY93: \$0 TOTAL: \$284,600  
*Prin. Invest. NASA Tech. Officer CASE Category*  
G F SMOOT HQ/F C GILLET 11-Astronomy  
...../E J WEILER

**NAGW 427 University of California - Berkeley 2094**  
THEOREDOXIM-LINKED ENZINE REGULATION AS A PROBE FOR  
STUDYING THE EVOLUTION OF PHOTO SYNTHESIS  
*Period Obligations*  
01/01/1983-12/31/1992 FY93: \$0 TOTAL: \$497,508  
*Prin. Invest. NASA Tech. Officer CASE Category*  
B B BUCHANAN HQ/S W FOGLEMAN 51-Biological Sci  
...../J D RUMMEL

**NAGW 526 University of California - Berkeley 2095**  
A PROPOSAL TO BUILD A VASTLY IMPROVED DATA ACQUISITION  
SYSTEM FOR THE BERKELEY SETI PROGRAM: SERENDI  
*Period Obligations*  
01/01/1984-07/31/1992 FY93: \$0 TOTAL: \$194,400  
*Prin. Invest. NASA Tech. Officer CASE Category*  
C S BOWYER HQ/J D RUMMEL 11-Astronomy  
J TARTER ...../M AVERNER  
R BUITSE

**NAGW 604 University of California - Berkeley 2096**  
EXPERMINTAL STUDIES PERTAINING TO THE NATURE OF THE  
EARTH'S CORE  
*Period Obligations*  
04/15/1984-09/30/1993 FY93: \$89,900 TOTAL: \$700,099  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R JEANLOZ HQ/J D RUMMEL 32-Geological Sci  
...../J M BOYCE

**NAGW 681 University of California - Berkeley 2097**  
DIRECTED SEARCH FOR LASER SIGNALS AT 10 UM  
*Period Obligations*  
11/15/1984-11/14/1992 FY93: \$0 TOTAL: \$379,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
A L BETZ HQ/J D RUMMEL 13-Physics  
...../M AVERNER

**NAGW 1290 University of California - Berkeley 2098**  
STUDY OF PHOTOEMISSION CHARACTERISTICS OF INORGANIC  
PHOTOCATH.  
*Period Obligations*  
05/01/1988-04/30/1994 FY93: \$190,000 TOTAL: \$1,224,348  
*Prin. Invest. NASA Tech. Officer CASE Category*  
O H SIEGMUND HQ/G C CLAYTON 11-Astronomy

# NASA'S UNIVERSITY PROGRAM CALIFORNIA (Continued)

**NAGW 1352 University of California - Berkeley 2099**  
ROCKET BORNE SUBMILLIMETER WAVE ASTRONOMY  
*Period Obligations*  
07/13/1988-11/30/1993 FY93: \$120,000 TOTAL: \$601,600  
*Prin. Invest. NASA Tech. Officer CASE Category*  
P L RICHARDS HQ/F C GILLET 11-Astronomy

**NAGW 1503 University of California - Berkeley 2100**  
THE SYSTEMATIC INTERPRETATION OF COSMIC RAY DATA  
*Period Obligations*  
12/28/1988-11/30/1993 FY93: \$140,000 TOTAL: \$678,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
H J CRAWFORD HQ/W V JONES 13-Physics  
....J D BOHLIN

**NAGW 1513 University of California - Berkeley 2101**  
COLLABORATIVE ANALYSIS OF PIONEER VENUS ORBITER  
*Period Obligations*  
11/18/1988-10/31/1991 FY93: \$0 TOTAL: \$150,500  
*Prin. Invest. NASA Tech. Officer CASE Category*  
K C HURLEY HQ/L J KALUZIENSKI 11-Astronomy  
....A N BUNNER

**NAGW 1565 University of California - Berkeley 2102**  
A STUDY OF THE MHD AND KINETIC STRUCTURE OF DISCONTINUITIES  
*Period Obligations*  
12/14/1988-01/31/1993 FY93: \$0 TOTAL: \$276,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
C W CARLSON HQ/M M MELLOTT 13-Physics  
....T W PERRY

**NAGW 1597 University of California - Berkeley 2103**  
SPACE-BORNE INFRARED ASTRONOMY  
*Period Obligations*  
12/27/1988-09/30/1993 FY93: \$190,000 TOTAL: \$845,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
A E LANGE HQ/F C GILLET 11-Astronomy

**NAGW 1626 University of California - Berkeley 2104**  
NONLINEAR ELECTROSTATIC EFFECTS ON AURORAL FIELD LINES  
*Period Obligations*  
03/01/1989-03/31/1993 FY93: \$0 TOTAL: \$252,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
F S MOZER HQ/M M MELLOTT 13-Physics  
....T W PERRY

**NAGW 1672 University of California - Berkeley 2105**  
INNOVATIVE RESEARCH AT THE SPACE SCIENCE LABORATORY  
*Period Obligations*  
03/14/1989-03/31/1992 FY93: \$0 TOTAL: \$690,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
C F MCKEE HQ/J K ALEXANDER 11-Astronomy  
....D A HOLLAND

**NAGW 1686 University of California - Berkeley 2106**  
DIELECTRIC MICRO CALORIMETER FOR PHOTON COUNTING X-RAY SPECTROSCOPY  
*Period Obligations*  
02/16/1989-02/28/1993 FY93: \$0 TOTAL: \$454,500  
*Prin. Invest. NASA Tech. Officer CASE Category*  
E H SILVER HQ/J K ALEXANDER 11-Astronomy  
....D A HOLLAND

**NAGW 1795 University of California - Berkeley 2107**  
DEVELOPMENT OF SPACE PLASMA MEASUREMENT TECHNIQUES  
*Period Obligations*  
06/26/1989-07/31/1992 FY93: \$0 TOTAL: \$307,500  
*Prin. Invest. NASA Tech. Officer CASE Category*  
K A ANDERSON HQ/M M MELLOTT 13-Physics  
....T W PERRY

**NAGW 1860 University of California - Berkeley 2108**  
THEORETICAL STUDIES IN SPACE ASTRONOMY  
*Period Obligations*  
02/06/1990-10/31/1992 FY93: \$0 TOTAL: \$140,820  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J SILK HQ/G S LEVY 11-Astronomy

**NAGW 1879 University of California - Berkeley 2109**  
INVESTIGATION OF PLANAR DELAY LINE MCP READOUTS FOR PHOTON  
*Period Obligations*  
10/17/1989-09/30/1991 FY93: \$0 TOTAL: \$79,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
M L LAMPTON HQ/P R MAHAFFY 31-Atmos Sci

**NAGW 2000 University of California - Berkeley 2110**  
HEAT: A HIGH ENERGY ANTIMATTER TELESCOPE  
*Period Obligations*  
04/19/1990-10/31/1993 FY93: \$150,000 TOTAL: \$560,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
P B PRICE HQ/W V JONES 13-Physics  
....J C LING

**NAGW 2029 University of California - Berkeley 2111**  
INSTRUMENT DEVELOPMENT AND SCIENTIFIC APPLICATIONS OF THE EXTREME ULTRAVIOLET IMAGING TELESCOPE ARR  
*Period Obligations*  
04/02/1990-01/31/1994 FY93: \$110,000 TOTAL: \$278,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
O SIEGMUND HQ/G CLAYTON 11-Astronomy

**NAGW 2104 University of California - Berkeley 2112**  
DESIGN STUDIES FOR THE HNC EXPERIMENT ON THE MIR S PACE STATION  
*Period Obligations*  
06/06/1990-09/30/1994 FY93: \$137,001 TOTAL: \$618,301  
*Prin. Invest. NASA Tech. Officer CASE Category*  
P B PRICE HQ/W V JONES 13-Physics  
....J C LING

**NAGW 2115 University of California - Berkeley 2113**  
NAGW-2115/UNIV OF CA @ BERKELEY/A SCINTILLATION IMAGING GAS-FILLED HARD X-RAY TELESCOPE (SIGHT)  
*Period Obligations*  
06/06/1990-10/31/1993 FY93: \$250,000 TOTAL: \$1,178,920  
*Prin. Invest. NASA Tech. Officer CASE Category*  
B SADOBLET HQ/L J KALUZIENSKI 11-Astronomy  
....A N BUNNER

**NAGW 2121 University of California - Berkeley 2114**  
FAR INFRARED ALL-SKY SURVEY  
*Period Obligations*  
05/18/1990-01/31/1994 FY93: \$105,000 TOTAL: \$375,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
P RICHARDS HQ/G LEVY 31-Atmos Sci

**NASA'S UNIVERSITY PROGRAM  
CALIFORNIA (Continued)**

**NAGW 2340 University of California - Berkeley 2115**  
NAGW-2340/UNIV OF CA @ BERKELEY/SOLAR SYSTEM RADIO ASTRONOMY

Period	Obligations	
01/25/1991-12/31/1991	FY93: \$0	TOTAL: \$20,000
Prin. Invest.	NASA Tech. Officer	CASE Category
I DE PATER	HQ/J H RAHE	11-Astronomy

**NAGW 2635 University of California - Berkeley 2122**  
MODELING OF OBSERVED AURORAL PARTICLE DISTRIBUTION FUNCTIONS AND WAVES BY TEST PARTICLE

Period	Obligations	
09/10/1991-06/30/1992	FY93: \$0	TOTAL: \$25,000
Prin. Invest.	NASA Tech. Officer	CASE Category
G R SMITH	HQ/J D BOHLIN	39-Env Sci, NEC

**NAGW 2413 University of California - Berkeley 2116**  
DYNAMICS OF POLAR CAP ACCRETION ONTO NEUTRON STARS

Period	Obligations	
03/29/1991-12/31/1993	FY93: \$142,698	TOTAL: \$420,640
Prin. Invest.	NASA Tech. Officer	CASE Category
J ARONS	HQ/G S KUTTER	11-Astronomy
	....G R RIEGLER	

**NAGW 2640 University of California - Berkeley 2123**  
DEVELOPMENT OF HIGH EFFICIENCY MICROCHANNEL PLATE DETECTORS W/ HIGH SPATIAL RESOLUTION

Period	Obligations	
08/20/1991-12/31/1993	FY93: \$75,000	TOTAL: \$200,000
Prin. Invest.	NASA Tech. Officer	CASE Category
O H SIEGMOND	HQ/L KALUZIENSKI	13-Physics

**NAGW 2452 University of California - Berkeley 2117**  
STUDIES OF ENERGETIC ELECTRONS IN SOLAR FLARES

Period	Obligations	
04/19/1991-03/31/1994	FY93: \$98,900	TOTAL: \$285,565
Prin. Invest.	NASA Tech. Officer	CASE Category
K A ANDERSON	HQ/W J WAGNER	13-Physics
	....K LANG	

**NAGW 2688 University of California - Berkeley 2124**  
HIGH ENERGY ASTROPHYSICS X-RAY ASTRONOMY RESEARCH AND ANALYSIS PROGRAM

Period	Obligations	
08/20/1991-06/30/1994	FY93: \$170,000	TOTAL: \$455,000
Prin. Invest.	NASA Tech. Officer	CASE Category
S M KAHN	HQ/L J KALUZIENSKI	11-Astronomy

**NAGW 2478 University of California - Berkeley 2118**  
MULTI WAVELENGTH STUDIES OF HOT DA WHITE DWARFS

Period	Obligations	
05/09/1991-04/30/1993	FY93: \$0	TOTAL: \$163,000
Prin. Invest.	NASA Tech. Officer	CASE Category
D S FINLEY	HQ/G S KUTTER	11-Astronomy
	....G R RIEGLER	

**NAGW 2701 University of California - Berkeley 2125**  
NAGW-2701/UNIV CA/STUDY OF THE DIFFUSE FAR UV BACK GROUND WITH AN INSTRUMENT FLOWN AS A DELTA SECOND

Period	Obligations	
08/19/1991-09/30/1992	FY93: \$0	TOTAL: \$20,000
Prin. Invest.	NASA Tech. Officer	CASE Category
C S BUNYER	HQ/E J WEILER	11-Astronomy

**NAGW 2516 University of California - Berkeley 2119**  
NEW METHODS FOR INVERSION AND ANALYSIS OF SOLAR FREQUENCY OSCILLATION DATA

Period	Obligations	
07/10/1991-12/31/1993	FY93: \$88,000	TOTAL: \$253,332
Prin. Invest.	NASA Tech. Officer	CASE Category
B B STARK	HQ/W WAGNER	13-Physics
	....K LANG	

**NAGW 2722 University of California - Berkeley 2126**  
THE DERENDIP III PIGGYBACK SETI PROGRAM

Period	Obligations	
09/05/1991-12/31/1993	FY93: \$74,900	TOTAL: \$187,400
Prin. Invest.	NASA Tech. Officer	CASE Category
C S BOWYER	HQ/J D RUMMEL	11-Astronomy

**NAGW 2552 University of California - Berkeley 2120**  
NAGW-2552/UNIV CA @ BERKELEY/BERYLLIUM TO SILICON ISOTOPES USING AN ADVANCED MAGNET SPECTROMETER

Period	Obligations	
06/13/1991-10/31/1993	FY93: \$0	TOTAL: \$54,000
Prin. Invest.	NASA Tech. Officer	CASE Category
H J CRAWFORD	HQ/W V JONES	11-Astronomy
	....J C LING	

**NAGW 2763 University of California - Berkeley 2127**  
INFRARED LASER SPECTROSCOPY OF CARBON CLUSTERS

Period	Obligations	
11/08/1991-10/31/1993	FY93: \$69,685	TOTAL: \$138,773
Prin. Invest.	NASA Tech. Officer	CASE Category
R J SAYKALLY	HQ/J D RUMMEL	12-Chemistry

**NAGW 2592 University of California - Berkeley 2121**  
NAGW-2592/UNIV CA/SOFT X-RAY SPECTROSCOPY OF ACCRETION-POWERED SOURCES

Period	Obligations	
08/07/1991-04/30/1993	FY93: \$0	TOTAL: \$273,000
Prin. Invest.	NASA Tech. Officer	CASE Category
S M KAHN	HQ/G S KUTTER	11-Astronomy
	....G R RIEGLER	

**NAGW 2804 University of California - Berkeley 2128**  
OBSERVATION, THEORETICAL, AND EXPERIMENTAL COSMOLOGY

Period	Obligations	
12/13/1991-11/30/1992	FY93: \$0	TOTAL: \$110,000
Prin. Invest.	NASA Tech. Officer	CASE Category
W WELCH	HQ/J A NUTH	11-Astronomy

**NAGW 2883 University of California - Berkeley 2129**  
SOME NEW DIRECTIONS IN COMETARY SPECTROSCOPY

Period	Obligations	
02/13/1992-11/30/1993	FY93: \$53,398	TOTAL: \$103,681
Prin. Invest.	NASA Tech. Officer	CASE Category
H SPINRAD	HQ/H C BRINTON	11-Astronomy

**NASA'S UNIVERSITY PROGRAM  
CALIFORNIA (Continued)**

**NAGW 2986 University of California - Berkeley 2130**  
THE DYNAMICS OF LONG-LIVED PLANETARY VORTICES  
*Period Obligations*  
03/20/1992-12/31/1993 FY93: \$83,888 TOTAL: \$159,187  
*Prin. Invest. NASA Tech. Officer CASE Category*  
P S MARCUS HQ/W L QUAIDE 11-Astronomy

**NAGW 2991 University of California - Berkeley 2131**  
CARBON CLUSTERS AND THEIR RELATIONSHIP TO INTERSTELLAR DUST  
*Period Obligations*  
03/20/1992-03/31/1994 FY93: \$120,000 TOTAL: \$180,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R J SAYKALLY HQ/L J CAROFF 11-Astronomy

**NAGW 3008 University of California - Berkeley 2132**  
STUDY OF IMPACT-WAVE DEPOSITS NEAR THE PROPOSED KT BOUNDARY IMPACT CRATER IN YUCATAN  
*Period Obligations*  
03/20/1992-08/31/1994 FY93: \$36,600 TOTAL: \$71,608  
*Prin. Invest. NASA Tech. Officer CASE Category*  
W ALVAREZ HQ/J M BOYCE 32-Geological Sci

**NAGW 3027 University of California - Berkeley 2133**  
THEORETICAL STUDIES OF X-RAY SPECTROSCOPY OF ACCRETION DISKS ASSOCIATED WITH ACTIVE GALACTIC NUCLEI  
*Period Obligations*  
04/03/1992-04/28/1994 FY93: \$55,000 TOTAL: \$110,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R I KLEIN HQ/L J KALUZIENSKI 11-Astronomy  
...../A N BUNNER

**NAGW 3107 University of California - Berkeley 2134**  
PHYSICAL AND CHEMICAL EVOLUTION OF PROTOSTELLAR DISKS  
*Period Obligations*  
06/15/1992-05/31/1994 FY93: \$45,296 TOTAL: \$90,534  
*Prin. Invest. NASA Tech. Officer CASE Category*  
S W STAHLER HQ/J A NUTH 19-Phys Sci, NEC

**NAGW 3123 University of California - Berkeley 2135**  
NAGW-3123/UNIV CA/TO DEVELOP PART OF AN INSTRUMENT TO STUDY THE DIFFUSE EUV BACKGROUND  
*Period Obligations*  
07/02/1992-04/30/1994 FY93: \$229,400 TOTAL: \$529,400  
*Prin. Invest. NASA Tech. Officer CASE Category*  
C S BOWYER HQ/R STACHNIK 11-Astronomy  
...../R V STACHNIK

**NAGW 3154 University of California - Berkeley 2136**  
FROM THE MOONS OF JUPITER TO THE MILKY WAY  
*Period Obligations*  
07/30/1992-05/31/1993 FY93: \$0 TOTAL: \$4,981  
*Prin. Invest. NASA Tech. Officer CASE Category*  
M COHEN HQ/L LAPIANA 11-Astronomy  
...../C J PELLERIN JR

**NAGW 3241 University of California - Berkeley 2137**  
NAGW-3241/UNIV CA @ BERKELEY/LEARNING CLUB HANDS-ON SCIENCE PROJECT: PRIMARY/SECONDARY PROPOSAL  
*Period Obligations*  
11/02/1992-07/31/1993 FY93: \$8,130 TOTAL: \$8,130  
*Prin. Invest. NASA Tech. Officer CASE Category*  
B SADOULET HQ/L LAPIANA 11-Astronomy  
...../G P NEWTON

**NAGW 3267 University of California - Berkeley 2138**  
NAGW-3267/UNIV CALIF BERKELEY/IMPROVEMENTS TO THE IRAS LOW RESOLUTION SPECTROMETER DATABASE  
*Period Obligations*  
11/16/1992-09/14/1993 FY93: \$34,661 TOTAL: \$34,661  
*Prin. Invest. NASA Tech. Officer CASE Category*  
M COHEN HQ/G R RIEGLER 11-Astronomy

**NAGW 3314 University of California - Berkeley 2139**  
NAGW-3314/UNIV CALIF BERKELEY/16TH TEXAS SYMPOSIUM AND 3RD INTERNAT SYMPOSIUM ON PARTICLES, STRINGS  
*Period Obligations*  
12/23/1992-10/31/1993 FY93: \$20,000 TOTAL: \$20,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
B SADOULET HQ/L S LAPIANA 11-Astronomy

**NAGW 3429 University of California - Berkeley 2140**  
THE PHYSICS OF FLARING ATMOSPHERES  
*Period Obligations*  
03/03/1993-01/14/1994 FY93: \$94,798 TOTAL: \$94,798  
*Prin. Invest. NASA Tech. Officer CASE Category*  
G H FISHER HQ/W J WAGNER 13-Physics  
...../G WITHROE

**NAGW 3473 University of California - Berkeley 2141**  
STUDY OF HIGH TIME RESOLUTION  
*Period Obligations*  
03/01/1993-02/28/1994 FY93: \$81,200 TOTAL: \$81,200  
*Prin. Invest. NASA Tech. Officer CASE Category*  
C A CATTELL HQ/M M MELLOTT 13-Physics  
...../G L WITHBROE

**NAGW 3514 University of California - Berkeley 2142**  
HISTORICAL STUDIES ON EXTRATERRESTRIAL MATERIALS  
*Period Obligations*  
04/09/1993-12/31/1993 FY93: \$169,569 TOTAL: \$169,569  
*Prin. Invest. NASA Tech. Officer CASE Category*  
K NISHIZUMI HQ/J BOYCE 32-Geological Sci

**NAGW 3595 University of California - Berkeley 2143**  
INFRARED SPECTROSCOPY OF PROTOSTELLAR WINDS  
*Period Obligations*  
05/21/1993-03/31/1994 FY93: \$50,127 TOTAL: \$50,127  
*Prin. Invest. NASA Tech. Officer CASE Category*  
F H SHU HQ/J A NUTH III 19-Phys Sci, NEC

**NAGW 3605 University of California - Berkeley 2144**  
TRANSDUCTION OF THE GRAVITY SIGNAL IN ROOTS OF CORN  
*Period Obligations*  
06/23/1993-03/31/1994 FY93: \$60,000 TOTAL: \$60,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
L FELDMAN HQ/T W HALSTEAD 51-Biological Sci

**NASA'S UNIVERSITY PROGRAM  
CALIFORNIA (Continued)**

**NAGW 3639 University of California - Berkeley 2145**  
HIGH EFFICIENCY FAR ULTRAVIOLET PHOTOCATHODES  
*Period Obligations*  
06/04/1993-06/30/1994 FY93: \$45,000 TOTAL: \$45,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
O H SIEGMUND HQ/R V STACHNIK 11-Astronomy  
.....E J WEILER

**NAGW 3664 University of California - Berkeley 2146**  
ACTIVE GRATING UV SPECTROSCOPY  
*Period Obligations*  
07/01/1993-03/31/1994 FY93: \$40,200 TOTAL: \$40,200  
*Prin. Invest. NASA Tech. Officer CASE Category*  
C S BOWYER HQ/R V STACHNIK 11-Astronomy  
.....E J WEILER

**NAG10-80 University of California - Berkeley 2147**  
TRANSDUCTION OF THE GRAVITY SIGNAL IN THE ROOTS OF CORN  
*Period Obligations*  
02/18/1991-12/31/1993 FY93: \$0 TOTAL: \$110,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
L FELDMAN KSC/W M KNOTT 55-Agriculture Sci

**NAS 5-29298 University of California - Berkeley 2148**  
GSFC EXTREME ULTRAVIOLET INVESTATION FOR THE EXTREME ULTRAVIOLET EXPLORER  
*Period Obligations*  
06/19/1986-03/08/1996 FY93: \$3,700,000 TOTAL: \$41,072,523  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R MALINA GSFC/A J MILLER 11-Astronomy

**NAS 5-30180 University of California - Berkeley 2149**  
EXTREME ULTRAVIOLET EXPLORER MISSION INVESTIGATION  
*Period Obligations*  
07/17/1987-01/08/1997 FY93: \$3,300,000 TOTAL: \$11,320,982  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D HUNTEN GSFC/A SMITH 11-Astronomy

**NAS 5-30241 University of California - Berkeley 2150**  
ELECTRIC FIELD INVESTIGATION  
*Period Obligations*  
01/07/1989-06/30/1993 FY93: \$250,082 TOTAL: \$405,082  
*Prin. Invest. NASA Tech. Officer CASE Category*  
F S MOZER GSFC/D GALOPPO 13-Physics

**NAS 5-30366 University of California - Berkeley 2151**  
3-D PLASMA AND ENERGETIC PARTICLE ANALYZER EXPERIMENT WIND  
*Period Obligations*  
02/16/1989-03/30/1995 FY93: \$647,600 TOTAL: \$4,568,500  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R LIN GSFC/F WAINSCOTT 13-Physics

**NAS 5-30367 University of California - Berkeley 2152**  
ELECTRIC FIELD INVESTIGATION FOR POLAR MISSION  
*Period Obligations*  
02/16/1989-03/13/1995 FY93: \$634,400 TOTAL: \$4,422,400  
*Prin. Invest. NASA Tech. Officer CASE Category*  
F S MOZER GSFC/W C ANSELM 13-Physics

**NAS 5-30801 University of California - Berkeley 2153**  
ISTP PROJECT'S ELECTRIC FIELDS AND WAVES  
*Period Obligations*  
07/02/1990-12/31/1997 FY93: \$731,000 TOTAL: \$3,347,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
F MOZER GSFC/L CHRISTENSEN 31-Atmos Sci

**NAS 5-31283 University of California - Berkeley 2154**  
FAST AURORAL SNAPSHOT EXPLORER (FAST)  
*Period Obligations*  
01/10/1991-01/30/1994 FY93: \$4,300,000 TOTAL: \$9,174,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
C W CARLSON GSFC/R ALEMAN 41-Aero Engr

**NAS 5-31429 University of California - Berkeley 2155**  
SYSTEM DESIGN PHASE OF REFLECTION GRATING ASSEMBLY  
*Period Obligations*  
12/28/1990-09/30/1993 FY93: \$51,124 TOTAL: \$987,996  
*Prin. Invest. NASA Tech. Officer CASE Category*  
S KAHN GSFC/R DONNELLY 41-Aero Engr

**NAS 5-31725 University of California - Berkeley 2156**  
DEVELOPMENT OF A TOOL-SET FOR SIMULTANEOUS OBSERVATIONS OF ASTRONOMICAL OBJECTS  
*Period Obligations*  
10/01/1991-12/31/1992 FY93: \$0 TOTAL: \$140,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
S CHAKRABARTI GSFC/H BURRITT 22-Computer Science

**NAS 8-32577 University of California - Berkeley 2157**  
MISSION  
*Period Obligations*  
05/10/1977-12/30/1993 FY93: \$400,030 TOTAL: \$5,189,683  
*Prin. Invest. NASA Tech. Officer CASE Category*  
S BOWYER MSFC/T ONEIL 31-Atmos Sci  
M LAMPTON ...../R EADY

**NAS 8-38244 University of California - Berkeley 2158**  
HEAVY NUCLEUS COLLECTOR INVESTIGATION  
*Period Obligations*  
09/14/1990-10/31/1993 FY93: \$0 TOTAL: \$128,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
P B PRICE MSFC/T R SMITH 11-Astronomy

**NAS13-375 University of California - Berkeley 2159**  
STUDY REMOTELY SENSED DATA FOR COMMERCIAL FOREST INVENTORY  
*Period Obligations*  
11/23/1988-01/31/1992 FY93: \$4,041 TOTAL: \$400,098  
*Prin. Invest. NASA Tech. Officer CASE Category*  
G S BIGING SSC/C L HILL 39-Env Sci, NEC  
R G CONGALTON

**NCA 2-488 University of California - Berkeley 2160**  
ALGORITHMS TO ANALYZE RANDOM AND CHAOTIC TIME SERIES DATA  
*Period Obligations*  
02/22/1990-03/31/1992 FY93: \$0 TOTAL: \$45,744  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D L DONOHO ARC/J D SCARGLE 13-Physics  
J CRUTCHFIELD

**NASA'S UNIVERSITY PROGRAM  
CALIFORNIA (Continued)**

**NCA 2-515 University of California - Berkeley 2161**  
OBSERVATION OF TOTAIONAL-VIBRATONAL SPECTRA IN THE  
BERKELEY LOW PRESSURE WIND TUNNEL

Period	Obligations	
05/04/1990-04/30/1992	FY93: \$0	TOTAL: \$80,000
Prin. Invest.	NASA Tech. Officer	CASE Category
F C HURLBUT	ARC/G S DEIWERT	41-Aero Engr
M HOLT		

**NCA 2-757 University of California - Berkeley 2168**  
STUDIES OF MESUR AEROSHELL CONFIGURAITON IN HYPERS ONIC  
RAREFIED FLOWS OF C02

Period	Obligations	
11/24/1992-10/14/1993	FY93: \$40,000	TOTAL: \$40,000
Prin. Invest.	NASA Tech. Officer	CASE Category
F C HURLBUT	ARC/G S DEIWERT	41-Aero Engr
M HOLT		
V P CAREY		

**NCA 2-529 University of California - Berkeley 2162**  
AN EXPLOYATORY STUDY OF MULTI-BODY AERODYNAMIC  
INTERFERENCE AT TRANSONIC SPEEDS

Period	Obligations	
06/08/1990-09/14/1992	FY93: \$0	TOTAL: \$80,000
Prin. Invest.	NASA Tech. Officer	CASE Category
M HOLT	ARC/A STRAWA	46-Mech Engr
G CHAPMAN		

**NCA 2-763 University of California - Berkeley 2169**  
CHEMICAL MODELING OF THE ATMOSPHERES OF VENUS AND  
TRITON

Period	Obligations	
11/23/1992-04/22/1993	FY93: \$27,056	TOTAL: \$27,056
Prin. Invest.	NASA Tech. Officer	CASE Category
C S BOWYER	ARC/J B POLLACK	11-Astronomy
V A KRASNOPOLSKY	....D P CRUIKSHANK	

**NCA 2-635 University of California - Berkeley 2163**  
LASER INTERFEROMETRIC INVESTIGATION OF THE SUPERSONIC  
PLUME BASE FLOW PROBLEM

Period	Obligations	
07/17/1991-06/30/1993	FY93: \$40,000	TOTAL: \$80,000
Prin. Invest.	NASA Tech. Officer	CASE Category
M HOLT	ARC/G S DEIWERT	41-Aero Engr

**NCA 2-782 University of California - Berkeley 2170**  
FLIGHT OF DELTA WING IN LANDING MODE

Period	Obligations	
02/12/1993-01/31/1994	FY93: \$40,000	TOTAL: \$40,000
Prin. Invest.	NASA Tech. Officer	CASE Category
M HOLT	ARC/T HOLST	41-Aero Engr
A PACKARD	....T EDWARDS	

**NCA 2-637 University of California - Berkeley 2164**  
STUDY OF THE COMPOSITION AND SIZE DISTRIBUTION OF  
INTERSTELLAR DUST

Period	Obligations	
07/19/1991-08/31/1993	FY93: \$0	TOTAL: \$80,000
Prin. Invest.	NASA Tech. Officer	CASE Category
C MCKEE	ARC/A G TIELENS	11-Astronomy

**NCA 2-826 University of California - Berkeley 2171**  
STUDY OF ION-IMPLANTATION IN INTERSTELLAR DUST GRAINS

Period	Obligations	
06/29/1993-08/31/1995	FY93: \$43,000	TOTAL: \$43,000
Prin. Invest.	NASA Tech. Officer	CASE Category
C MCKEE	ARC/A TIELENS	11-Astronomy

**NCA 2-678 University of California - Berkeley 2165**  
FORMATION OF INTERSTELLAR AND COMETARY ICES

Period	Obligations	
01/21/1992-10/30/1994	FY93: \$45,540	TOTAL: \$80,000
Prin. Invest.	NASA Tech. Officer	CASE Category
I DE PATER	ARC/A G TIELENS	11-Astronomy

**NCC 2-36 University of California - Berkeley 2172**  
SELECTED TARGET SETI OBSERVATIONS USING VLBI TECHNIQUES  
AND PATTERN RECOGNITION STUDIES

Period	Obligations	
11/01/1987-09/30/1992	FY93: \$0	TOTAL: \$774,324
Prin. Invest.	NASA Tech. Officer	CASE Category
F SHU	ARC/H W JONES	99-Multi-Discip
J TARTER	....J BILLINGHAM	

**NCA 2-703 University of California - Berkeley 2166**  
ROVIBRATIONAL NONEQUILIBRIUM IN RAREFIED FLOWS OF  
MONATOMIC GASES WITH NITROGEN

Period	Obligations	
04/24/1992-09/30/1993	FY93: \$0	TOTAL: \$10,000
Prin. Invest.	NASA Tech. Officer	CASE Category
F C HURLBUT	ARC/G S DEIWERT	41-Aero Engr
M HOLT		

**NCC 2-86 University of California - Berkeley 2173**  
FLIGHT MGMT SYSTEM

Period	Obligations	
09/01/1987-12/31/1992	FY93: \$0	TOTAL: \$1,719,845
Prin. Invest.	NASA Tech. Officer	CASE Category
L STARK	ARC/S R ELLIS	99-Multi-Discip

**NCA 2-714 University of California - Berkeley 2167**  
COMPUTER SIMULATIONS OF STRUCTURE OF SIMPLE  
MEMBRANES

Period	Obligations	
04/22/1992-06/30/1992	FY93: \$1	TOTAL: \$14,967
Prin. Invest.	NASA Tech. Officer	CASE Category
I TINOCO	ARC/S CHANG	12-Chemistry

**NCC 2-142 University of California - Berkeley 2174**  
DETECTION IDENTIFICATION AND PRECISE LOCATION OF INFRARED  
OBJECTS

Period	Obligations	
07/01/1981-05/31/1994	FY93: \$138,117	TOTAL: \$981,221
Prin. Invest.	NASA Tech. Officer	CASE Category
C E HEILES	ARC/F C WITTENBORN	11-Astronomy
M COHEN	....D GOORVITCH	

**NASA'S UNIVERSITY PROGRAM  
CALIFORNIA (Continued)**

**NCC 2-275 University of California - Berkeley 2175**  
RESEARCH ON THE APPLICATION OF FUZZY LOGIC TO SYSTEMS  
ANALYSIS AND CONTROL  
*Period Obligations*  
11/01/1987-09/30/1993 FY93: \$90,000 TOTAL: \$867,173  
*Prin. Invest. NASA Tech. Officer CASE Category*  
L ZADEH ARC/P E FRIEDLAND 22-Computer Science

**NCC 2-548 University of California - Berkeley 2176**  
STAR FORMATION AND THE EVOLUTION OF ELLIPTICAL GAL  
*Period Obligations*  
07/01/1988-12/31/1993 FY93: \$303,058 TOTAL: \$1,554,504  
*Prin. Invest. NASA Tech. Officer CASE Category*  
F H SHU ARC/D J HOLLENBACH 11-Astronomy  
....P CASSER

**NCC 2-550 University of California - Berkeley 2177**  
RESEARCH ON COMPUTER SYSTEM BENCHMARKING  
*Period Obligations*  
08/01/1988-04/30/1993 FY93: \$0 TOTAL: \$250,469  
*Prin. Invest. NASA Tech. Officer CASE Category*  
A J SMITH ARC/K G STEVENS 22-Computer Science

**NCC 2-757 University of California - Berkeley 2178**  
TELEPRESENCE AND ITS RELATIONSHIP TO PERFORMANCE  
*Period Obligations*  
06/02/1992-01/31/1994 FY93: \$20,000 TOTAL: \$40,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
L STARK ARC/R B WELCH 69-Psych, NEC

**NCC 3-239 University of California - Berkeley 2179**  
MICROGRAVITY EFFECTS ON LAMINAR TURBULENT TRANSITI ON  
OF GAS JET DIFFUSION FLAMES  
*Period Obligations*  
12/16/1991-11/30/1993 FY93: \$75,445 TOTAL: \$147,101  
*Prin. Invest. NASA Tech. Officer CASE Category*  
A C LERC/H D ROSS 46-Mech Engr  
FERNANDEZ-PELLO

**NGR 5-3450 University of California - Berkeley 2180**  
ULTRA-SOFT WAVELENGTHS \$146,812  
*Period Obligations*  
05/28/1971-10/31/1993 FY93: \$300,000 TOTAL: \$10,046,114  
*Prin. Invest. NASA Tech. Officer CASE Category*  
C S BOWYER GSFC/L J EARLY 11-Astronomy  
....R H PLESS

**NGT 00-030-025 University of California - Berkeley 2181**  
NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
10/31/1990-08/31/1993 FY93: \$0 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
A P KINZIG HQ/G ASRAR 39-Env Sci, NEC

**NGT 00-030-048 University of California - Berkeley 2182**  
NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
09/17/1991-08/31/1994 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
M S TORN HQ/D M BUTLER 39-Env Sci, NEC  
J HARTE ....G S WILSON

**NGT 00-030-073 University of California - Berkeley 2183**  
NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
09/06/1991-08/31/1992 FY93: \$0 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
B L COX HQ/D M BUTLER 39-Env Sci, NEC  
M FIRESTONE ....G S WILSON

**NGT 00-030-083 University of California - Berkeley 2184**  
NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
09/17/1991-08/31/1994 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
S P ANDERSON HQ/D M BUTLER 39-Env Sci, NEC  
W E DIETRICH ....G S WILSON

**NGT 00-030-105 University of California - Berkeley 2185**  
NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
11/02/1992-08/31/1994 FY93: \$44,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D E GRANGER HQ/G ASRAR 32-Geological Sci  
....D M BUTLER

**NGT 00-030-107 University of California - Berkeley 2186**  
NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
10/21/1992-08/31/1994 FY93: \$44,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
A JUELS HQ/G ASRAR 22-Computer Science  
....D M BUTLER

**NGT 00-030-154 University of California - Berkeley 2187**  
NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
11/02/1992-08/31/1994 FY93: \$44,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
S E HOBBIE HQ/G ASRAR 39-Env Sci, NEC  
....D M BUTLER

**NGT 00-030-165 University of California - Berkeley 2188**  
NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
08/24/1993-08/31/1996 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
M E POWER HQ/G ASRAR 39-Env Sci, NEC  
....D M BUTLER

**NGT 00-030-191 University of California - Berkeley 2189**  
NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
08/27/1993-08/31/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
W ALVAREZ HQ/G ASRAR 32-Geological Sci  
....D M BUTLER

**NGT 00-030-212 University of California - Berkeley 2190**  
NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
08/26/1993-08/31/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J HARTE HQ/D E WICKLAND 31-Atmos Sci  
....A C JANETOS

**NASA'S UNIVERSITY PROGRAM  
CALIFORNIA (Continued)**

**NGT 00-050-271 University of California - Berkeley 2191**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 07/13/1988-12/31/1991 FY93: \$0 TOTAL: \$58,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D E LARSON HQ/F C OWENS 13-Physics  
 K A ANDERSON ....T EASTMAN

**NGT 00-050-607 University of California - Berkeley 2199**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 07/24/1990-06/30/1993 FY93: \$0 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R P LIN HQ/F C OWENS 13-Physics

**NGT 00-050-312 University of California - Berkeley 2192**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 07/13/1988-12/31/1991 FY93: \$0 TOTAL: \$57,800  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A E LANGE HQ/F C OWENS 13-Physics

**NGT 00-050-613 University of California - Berkeley 2200**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 07/24/1990-06/30/1993 FY93: \$0 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S M KAHN HQ/F C OWENS 13-Physics

**NGT 00-050-450 University of California - Berkeley 2193**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 08/17/1989-06/30/1992 FY93: \$3,087 TOTAL: \$58,913  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 C H TOWNES HQ/F C OWENS 13-Physics

**NGT 00-050-771 University of California - Berkeley 2201**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 06/25/1991-06/30/1994 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A E LANGE HQ/F C OWENS 13-Physics

**NGT 00-050-451 University of California - Berkeley 2194**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 08/04/1989-04/30/1993 FY93: \$0 TOTAL: \$62,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 F S MOZER HQ/F C OWENS 13-Physics

**NGT 00-050-783 University of California - Berkeley 2202**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 07/23/1991-06/30/1994 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 G F SMOOT HQ/F C OWENS 13-Physics

**NGT 00-050-454 University of California - Berkeley 2195**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 07/01/1989-06/30/1992 FY93: \$0 TOTAL: \$62,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 P B PRICE HQ/F C OWENS 13-Physics

**NGT 00-050-787 University of California - Berkeley 2203**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 06/10/1991-06/30/1994 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S CHAKRABARTI HQ/F C OWENS 13-Physics

**NGT 00-050-462 University of California - Berkeley 2196**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 08/11/1989-01/31/1993 FY93: \$0 TOTAL: \$62,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 B SADOULET HQ/F C OWENS 12-Chemistry

**NGT 00-050-892 University of California - Berkeley 2204**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 05/05/1992-06/30/1993 FY93: \$22,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 L A ZADEU JPL/H ASHKENAS 29-Math/Computer, NEC

**NGT 00-050-467 University of California - Berkeley 2197**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 08/14/1989-06/30/1993 FY93: \$0 TOTAL: \$62,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S M KAHN HQ/F C OWENS 13-Physics

**NGT 00-050-913 University of California - Berkeley 2205**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 05/26/1992-06/30/1994 FY93: \$22,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 P B PRICE HQ/J ALEXANDER 13-Physics

**NGT 00-050-603 University of California - Berkeley 2198**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 07/24/1990-06/30/1993 FY93: \$0 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 P L RICHARDS HQ/F C OWENS 13-Physics

**NGT 00-050-921 University of California - Berkeley 2206**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 07/09/1992-06/30/1994 FY93: \$22,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 H SPINRAD HQ/J ALEXANDER 11-Astronomy



**NASA'S UNIVERSITY PROGRAM  
CALIFORNIA (Continued)**

**NGT 00-050-939 University of California - Berkeley 2207**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
06/15/1992-06/30/1994 FY93: \$22,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R J SAYKALLY HQ/J K ALEXANDER 12-Chemistry

**NGT 00-051-030 University of California - Berkeley 2208**  
GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
06/22/1993-06/30/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
M HOLT HQ/P HUNTER 46-Mech Engr

**NGT 00-051-062 University of California - Berkeley 2209**  
GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
05/27/1993-06/30/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
O H SIEGMUND HQ/D HOLLAND 13-Physics

**NGT 00-051-076 University of California - Berkeley 2210**  
GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
06/01/1993-06/30/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
A E LANGE HQ/D HOLLAND 13-Physics

**NGT 00-051-082 University of California - Berkeley 2211**  
GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
06/01/1993-06/30/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J R GRAHAM HQ/D HOLLAND 11-Astronomy

**NGT 00-070-309 University of California - Berkeley 2212**  
NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
MINORITY FOCUS PROGRAM  
*Period Obligations*  
06/22/1993-05/31/1994 FY93: \$19,760 TOTAL: \$19,760  
*Prin. Invest. NASA Tech. Officer CASE Category*  
M HOLT HQ/D K RUSSELL 46-Mech Engr

**NGT 00-070-310 University of California - Berkeley 2213**  
NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
MINORITY FOCUS PROGRAM  
*Period Obligations*  
06/22/1993-05/31/1994 FY93: \$21,000 TOTAL: \$21,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
F HURLEUT HQ/D K RUSSELL 46-Mech Engr

**NGT 00-090-039 University of California - Berkeley 2214**  
MESA COMMUNITY COLLEGE PROGRAM  
*Period Obligations*  
08/17/1992-07/14/1994 FY93: \$118,860 TOTAL: \$218,852  
*Prin. Invest. NASA Tech. Officer CASE Category*  
M DIAMOND HQ/B WHITE 99-Multi-Discip  
...../S MASSENBERG

**NAG 1-1178 University of California - Davis 2215**  
NUMERICAL SIMULATION OF TRANSITION IN VORTEX  
BREAKDOWN  
*Period Obligations*  
08/28/1990-09/30/1992 FY93: \$1 TOTAL: \$30,001  
*Prin. Invest. NASA Tech. Officer CASE Category*  
M M HAFEZ LARC/C L STREETT 41-Aero Engr  
...../A KUMAR

**NAG 2-482 University of California - Davis 2216**  
TECHNIQUES FOR THE ASSESSMENT OF MANNED FLIGHT  
SIMULATOR FIDELITY  
*Period Obligations*  
10/01/1987-09/30/1991 FY93: \$270 TOTAL: \$106,749  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R A HESS ARC/R S BRAY 41-Aero Engr  
T N MALSBURY ...../A ATENCIO

**NAG 2-562 University of California - Davis 2217**  
THERMOREGULATION IN PRIMATES IN THE SPACE ENVIRONM  
ENT  
*Period Obligations*  
02/24/1989-09/30/1992 FY93: \$0 TOTAL: \$809,961  
*Prin. Invest. NASA Tech. Officer CASE Category*  
C A FULLER ARC/C M WINGET 54-Env Biology  
...../R W BALLARD

**NAG 2-587 University of California - Davis 2218**  
BIOLOGICAL RHYTHMS AND TEMPERATURE REGULATION IN  
RHESUS MONKEYS DURING SPACEFLIGHT  
*Period Obligations*  
07/12/1989-10/31/1993 FY93: \$135,000 TOTAL: \$694,421  
*Prin. Invest. NASA Tech. Officer CASE Category*  
C A FULLER ARC/J P CONNOLLY 51-Biological Sci  
...../R W BALLARD

**NAG 2-649 University of California - Davis 2219**  
THE EFFECTS OF WEIGHTLESSNESS ON BONE MINERALIZAT ION  
*Period Obligations*  
06/29/1990-03/31/1993 FY93: \$0 TOTAL: \$119,362  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R B MARTIN ARC/S B ARNAUD 59-Life Sci, NEC

**NAG 2-654 University of California - Davis 2220**  
ANALYTICAL HANDLING QUALITIES ASSESSMENT WITH APP  
LICATION TO AEROSPACECRAFT FLIGHT CONTROL  
*Period Obligations*  
07/18/1990-09/30/1993 FY93: \$34,926 TOTAL: \$98,576  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R A HESS ARC/D T BERRY 41-Aero Engr

**NAG 2-773 University of California - Davis 2221**  
REMOTE SENSING SURVEILLANCE FOR PREDICTING MALARIA  
TRANSMISSION RISK ASSOCIATED W/RICE FIELDS IN...  
*Period Obligations*  
05/13/1992-12/31/1992 FY93: \$0 TOTAL: \$15,001  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R K WASHINO ARC/C E DULLER 39-Env Sci, NEC  
...../J SALUTE

**NASA'S UNIVERSITY PROGRAM  
CALIFORNIA (Continued)**

**NAG 2-788 University of California - Davis 2222**  
GRAVITATIONAL FIELDS AND NEURAL SIGNALING IN THE HIP  
POCAMPUS  
*Period* *Obligations*  
05/29/1992-04/30/1994 FY93: \$48,500 TOTAL: \$97,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J M HOROWITZ ARC/C E WADE 51-Biological Sci

**NAG 2-795 University of California - Davis 2223**  
EFFECTS OF CENTRIFUGE DIAMETER AND OPERATION ON RODE  
NT ADAPTION TO CHRONIC CENTRIFUGATION  
*Period* *Obligations*  
08/28/1992-09/30/1993 FY93: \$132,586 TOTAL: \$280,044  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
C A FULLER ARC/S M HING 59-Life Sci, NEC  
...../B J CORBIN

**NAG 2-801 University of California - Davis 2224**  
LIGHT AND GRAVITY EFFECTS ON CIRCADIAN RHYTHMS IN RH  
ESUS MACAQUES'  
*Period* *Obligations*  
09/01/1992-06/30/1994 FY93: \$58,200 TOTAL: \$106,700  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
C A FULLER ARC/J VERNIKOS 51-Biological Sci

**NAG 2-840 University of California - Davis 2225**  
HOMEOSTATIC AND CIRCADIAN RESPONSES OF RHESUS MONKEY  
S DURING SPACEFLIGHT  
*Period* *Obligations*  
06/11/1993-12/31/1993 FY93: \$49,999 TOTAL: \$49,999  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J VERNIKOS ARC/C M WINGET 51-Biological Sci

**NAG 3-1007 University of California - Davis 2226**  
MODULATION TECHNIQUES FOR POWER AND SPECTRALLY EFF  
ICIENT SATCOM SYSTEMS  
*Period* *Obligations*  
03/03/1989-01/08/1993 FY93: \$1,959 TOTAL: \$185,583  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
K FEHER LERC/J M BUDINGER 45-Elec Engr  
...../J L HARROLD

**NAG 3-1166 University of California - Davis 2227**  
FAULT TOLERANCE IN SPACE-BASED DIGITAL SIGNAL PROC ESSING  
AND SWITCHING SYSTEMS  
*Period* *Obligations*  
04/23/1990-02/21/1994 FY93: \$50,023 TOTAL: \$205,518  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
G R REDINEO LERC/J M BUDINGER 45-Elec Engr  
...../J L HARROLD

**NAG 5-1439 University of California - Davis 2228**  
SHORT WAVELENGTH ANTIREFLECTIVE OPTICAL COATINGS  
*Period* *Obligations*  
08/16/1990-09/14/1992 FY93: \$104 TOTAL: \$43,725  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
B G HIGGINS GSFC/H D VITAGLIANO 43-Chem Engr

**NAG 5-1759 University of California - Davis 2229**  
VARIOUS ROSAT STUDIES (1) A SEARCH FOR COMPACT X-R AY  
SOURCES IN THREE CRAB-LIKE SNR .....  
*Period* *Obligations*  
09/11/1991-09/14/1993 FY93: \$0 TOTAL: \$41,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R H BECKER GSFC/R PETRE 11-Astronomy

**NAG 5-1876 University of California - Davis 2230**  
THE SUPERNOVA REMNANT KES 79  
*Period* *Obligations*  
01/23/1992-02/14/1994 FY93: \$47,325 TOTAL: \$49,325  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R H BECKER GSFC/R PETRE 11-Astronomy

**NAG 8-811 University of California - Davis 2231**  
USE OF SATELLITE DATA AND MODELING  
*Period* *Obligations*  
01/23/1990-07/31/1992 FY93: \$133 TOTAL: \$61,867  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
T NATHAN MSFC/J W KAUFMAN 31-Atmos Sci

**NAG 8-871 University of California - Davis 2232**  
LIFE CYCLES OF TRANSIENT PLANETARY WAVES  
*Period* *Obligations*  
03/27/1991-03/31/1994 FY93: \$62,000 TOTAL: \$186,827  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
T R NATHAN MSFC/J W KAUFMAN 31-Atmos Sci

**NAG 9-605 University of California - Davis 2233**  
RESPONSE OF THE MALE GERM CELL IN MICE TO ACUTE IR  
RADIATION WITH 600 MEV56FE NUCLEI  
*Period* *Obligations*  
05/05/1992-04/01/1994 FY93: \$60,000 TOTAL: \$117,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
L WILEY JSC/D MORRISON 51-Biological Sci

**NAGW 903 University of California - Davis 2234**  
LASER STUDIES OF PHOTODISSOCIATION DYNAMICS  
*Period* *Obligations*  
06/01/1986-11/30/1993 FY93: \$75,000 TOTAL: \$428,999  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
W M JACKSON HQ/J T BERGSTRALH 31-Atmos Sci  
...../W L QUAIDE

**NAGW 1119 University of California - Davis 2235**  
ROLE OF PREBIOTIC AMPHIPHILIC MOLECULES IN EVOLUTION  
*Period* *Obligations*  
06/01/1987-11/30/1993 FY93: \$99,500 TOTAL: \$519,569  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
D W DEAMER HQ/J D RUMMEL 12-Chemistry

**NAGW 1144 University of California - Davis 2236**  
LABORATORY SIMULATION OF THE SURFACE OF HALLEY'S  
COMET  
*Period* *Obligations*  
07/01/1987-12/31/1993 FY93: \$55,000 TOTAL: \$243,349  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
W M JACKSON HQ/H C BRINTON 11-Astronomy  
...../J H RAHE

**NASA'S UNIVERSITY PROGRAM  
CALIFORNIA (Continued)**

**NAGW 1458 University of California - Davis 2237**  
THE EFFECTS OF GRAVITATIONAL FIELDS ON NEUTRAL  
SIGNALLING  
*Period* *Obligations*  
09/15/1988-04/30/1992 FY93: \$0 TOTAL: \$160,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J M HOROWITZ HQ/T W HALSTEAD 51-Biological Sci  
B A HORWITZ

**NAGW 2195 University of California - Davis 2238**  
NAGW-2195/UNIV CALIF @ DAVIS/HOMEOSTASIS AND BIOLOGICAL  
RHYTHMS IN THE HYPERDYNAMIC ENVIRONMENT  
*Period* *Obligations*  
07/23/1990-07/31/1992 FY93: \$0 TOTAL: \$120,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
C A FULLER HQ/T W HALSTEAD 51-Biological Sci

**NAGW 2369 University of California - Davis 2239**  
WORKSHOP ON BIOFLUIDDYNAMICS  
*Period* *Obligations*  
03/01/1991-08/31/1992 FY93: \$0 TOTAL: \$10,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
A Y CHEER HQ/L J WILLIAMS 59-Life Sci, NEC  
...../K A HESSENIUS

**NAGW 2636 University of California - Davis 2240**  
MONITORING SUCCESSIONAL AND HYDROLOGICAL TRENDS IN  
FIRE-DISTURBED BLACK SPRUCE FORESTS  
*Period* *Obligations*  
09/16/1991-06/30/1994 FY93: \$27,203 TOTAL: \$91,235  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
S USTIN HQ/R H THOMAS 39-Env Sci, NEC  
...../D M BUTLER

**NAS 5-31359 University of California - Davis 2241**  
EOS-BIOSPHERE-ATMOSPHERE INTERACTIONS STUDY  
*Period* *Obligations*  
11/05/1991-12/31/1999 FY93: \$60,000 TOTAL: \$133,400  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
S USTIN GSFC/P SELLERS 31-Atmos Sci

**NAS 5-31714 University of California - Davis 2242**  
EOS INVESTIGATION - ATMOSPHERIC INFRARED SOUNDER (AIRS)  
TEAM MEMBER INVESTIGATION  
*Period* *Obligations*  
02/17/1992-12/14/2001 FY93: \$200,000 TOTAL: \$400,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
S USTIN GSFC/T BRAKKE 32-Geological Sci

**NCA 2-563 University of California - Davis 2243**  
TIME DOMAIN ELECTROMAGNETIC ANALYSIS OF RESONANT  
STRUCTURES WITH APERTURES BASED ON T.L.M.  
*Period* *Obligations*  
10/04/1990-11/30/1992 FY93: \$0 TOTAL: \$70,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
M M HAFEZ ARC/GOORJIAN 41-Aero Engr  
A KNOESEN

**NCA 2-565 University of California - Davis 2244**  
A COMPARATIVE STUDY OF NUMERICAL TECHNIQUES FOR THE  
SOLUTION OF MAXWELL'S EQUATIONS.  
*Period* *Obligations*  
10/04/1990-11/30/1992 FY93: \$0 TOTAL: \$73,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
M M HAFEZ ARC/P GOORJIAN 41-Aero Engr

**NCA 2-568 University of California - Davis 2245**  
DESIGN AND OPTIMIZATION OF AERODYNAMIC CONFIGURATIONS  
WITH MINIMUM RADAR CROSS SECTION.  
*Period* *Obligations*  
10/04/1990-09/30/1992 FY93: \$0 TOTAL: \$73,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
C P VAN DAM ARC/P GOORJIAN 41-Aero Engr  
H DWYER

**NCA 2-572 University of California - Davis 2246**  
INVESTIGATION OF THE USEFULNESS OF CHIMERA IN  
COMPUTATIONAL ELECTRO-MAGNETISM.  
*Period* *Obligations*  
10/18/1990-10/31/1992 FY93: \$0 TOTAL: \$70,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J J CHATTOT ARC/P GOORJIAN 41-Aero Engr  
J L STEGER

**NCA 2-581 University of California - Davis 2247**  
DRAG PREDICTION THROUGH CFD AT HIGH SPEEDS  
*Period* *Obligations*  
01/22/1991-12/31/1992 FY93: \$0 TOTAL: \$70,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
C P VAN DAM ARC/T EDWARDS 41-Aero Engr

**NCA 2-627 University of California - Davis 2248**  
A BOX SCHEME FOR MASSIVELY PARALLEL COMPUTING  
*Period* *Obligations*  
06/24/1991-06/30/1993 FY93: \$0 TOTAL: \$50,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J J CHATTOT ARC/M L MERRIAM 41-Aero Engr

**NCA 2-628 University of California - Davis 2249**  
AN ENTROPY BASED APPROACH TO UNCONDITIONALLY STABLE  
MULTIGRID METHOD  
*Period* *Obligations*  
06/24/1991-06/30/1993 FY93: \$0 TOTAL: \$50,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J J CHATTOT ARC/M L MERRIAM 41-Aero Engr

**NCA 2-644 University of California - Davis 2250**  
SIMULATION OF INVISCID COMPRESSIBLE FLOWS WITH SHOCKS  
USING ACCURATE COMPACT SCHEMES  
*Period* *Obligations*  
08/01/1991-09/30/1993 FY93: \$0 TOTAL: \$40,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
M HAFEZ ARC/R M HICKS 41-Aero Engr

**NASA'S UNIVERSITY PROGRAM  
CALIFORNIA (Continued)**

**NCA 2-655 University of California - Davis 2251**  
ACCELERATED OVERSET GRID GENERATION FOR RAPID DESI GN  
STUDIES WITH CFD  
*Period* *Obligations*  
09/11/1991-08/31/1993 FY93: \$0 TOTAL: \$69,461  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
M M HAFEZ ARC/R L SORENSON 41-Aero Engr  
....W R VAN DALSEN

**NCA 2-737 University of California - Davis 2258**  
COUPLING OF POTENTIAL AND NAVIER-STOKES SOLVERS FOR THE  
SOLUTION OF ROTOR PERFORMANCE PROBLEMS  
*Period* *Obligations*  
07/23/1992-08/31/1994 FY93: \$19,660 TOTAL: \$35,056  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
M M HAFEZ ARC/F CARADONNA 46-Mech Engr

**NCA 2-663 University of California - Davis 2252**  
CALCULATIONS OF TURBULENT FLOWS AROUND AIR FOILS WITH  
EMPHASIS ON AKE CAPTURING  
*Period* *Obligations*  
09/24/1991-11/30/1992 FY93: \$0 TOTAL: \$21,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
M HAFEZ ARC/R STRAWN 46-Mech Engr  
....W MCCROSKEY

**NCA 2-760 University of California - Davis 2259**  
DEVELOPMENT OF EFFICIENT CODE FOR ACCURATE ANALYSI S  
AND DESIGN OF COMPLEX AIRCRAFT CONFIGURATION  
*Period* *Obligations*  
11/10/1992-11/14/1993 FY93: \$40,000 TOTAL: \$40,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
M HAFEZ ARC/P GELHAUSEN 41-Aero Engr

**NCA 2-670 University of California - Davis 2253**  
INTERCONNECTING RADIATED MESHES IN CHIMERA VISCOUS FLOW  
SIMULATION.  
*Period* *Obligations*  
11/04/1991-08/31/1992 FY93: \$0 TOTAL: \$14,930  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J CHATTOT ARC/P BUNING 41-Aero Engr

**NCA 2-774 University of California - Davis 2260**  
COMPARISON OF COMPUTED ELECTROMAGNETIC FIELD OBTAI NED  
USING THE CHIMERA METHOD AND AN UNSTRUC. GRID  
*Period* *Obligations*  
12/01/1992-11/30/1993 FY93: \$35,000 TOTAL: \$35,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J J CHATTOT ARC/P GOORJIAN 41-Aero Engr

**NCA 2-676 University of California - Davis 2254**  
TURBULENT BOUNDARY LAYER STRUCTURE IN AN ADVERSE  
PRESSURE ARADIENT  
*Period* *Obligations*  
12/23/1991-06/30/1993 FY93: \$0 TOTAL: \$30,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
B R WHITE ARC/D M DRIVER 41-Aero Engr

**NCA 2-775 University of California - Davis 2261**  
USE OF CFD AND CEM METHODS IN OPTIMIZED MULTIDISCI  
PLINARY DESIGN  
*Period* *Obligations*  
12/02/1992-11/30/1993 FY93: \$35,000 TOTAL: \$35,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
C P VAN DAM ARC/P GOORJIAN 41-Aero Engr  
H DWYER

**NCA 2-682 University of California - Davis 2255**  
ADAPTIVE GRIDS FOR COMPLEX THREE DIMENSIONAL FLOWS  
*Period* *Obligations*  
02/04/1992-01/31/1993 FY93: \$0 TOTAL: \$28,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
M HAFEZ ARC/W VAN DALSEM 41-Aero Engr

**NCA 2-776 University of California - Davis 2262**  
ACCURATE NUMERICAL SCHEMES FOR INTEGRATION OF MAXW  
ELL'S EQUATIONS  
*Period* *Obligations*  
12/01/1992-11/30/1993 FY93: \$35,000 TOTAL: \$35,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
M HAFEZ ARC/P GOORJIAN 41-Aero Engr

**NCA 2-721 University of California - Davis 2256**  
A MATEL OF KNOWLEDGE ACTUISATION AND QUESTION ANSW  
ERING FOR FAILURE ANALYSIS  
*Period* *Obligations*  
06/02/1992-06/30/1993 FY93: \$0 TOTAL: \$25,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
S J ALVARADO ARC/H LUM 22-Computer Science

**NCA 2-780 University of California - Davis 2263**  
COMPUTATIONAL MODELING OF FEMTOSECOND OPTICAL SOLI  
TIONS FROM FULL VECTOR NONLINEAR MAXWELL EQUATIONS  
*Period* *Obligations*  
01/11/1993-01/14/1995 FY93: \$24,500 TOTAL: \$24,500  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
A KNOESEN ARC/P GOORJIAN 45-Elec Engr

**NCA 2-728 University of California - Davis 2257**  
DETER OF SURFACE ROUGHNESS EFFECT AND ATMOSPHERIC  
STABILITY ON SALTATION THRESHOLD COND FOR MARS EAR  
*Period* *Obligations*  
06/30/1992-06/30/1994 FY93: \$15,000 TOTAL: \$58,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
B R WHITE ARC/B SMITH 41-Aero Engr

**NCA 2-789 University of California - Davis 2264**  
NUMERICAL SIMULATION OF FLOW ABOUT HELICOPTER FUSE  
LAGES  
*Period* *Obligations*  
02/04/1993-10/14/1993 FY93: \$27,000 TOTAL: \$27,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
M HAFEZ ARC/E P DUQUE 41-Aero Engr

**NASA'S UNIVERSITY PROGRAM  
CALIFORNIA (Continued)**

**NCA 2-804 University of California - Davis 2265**  
POPULATION DETERMINATIONS FOR GRAPES (GRAPEVINE ROT)  
MITE SENSING ANALYSIS OF PHYLLOXERA EARLY STRESS)  
*Period Obligations*  
04/02/1993-04/14/1994 FY93: \$34,802 TOTAL: \$34,802  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J GRANETT ARC/J SALUTE 55-Agriculture Sci  
J DEBENEDICTIS

**NCA 2-837 University of California - Davis 2266**  
NUMERICAL STUDY OF FAR FIELD NOISE PROPAGATION OF A  
ROTOR IN HOVER  
*Period Obligations*  
08/25/1993-05/31/1994 FY93: \$14,000 TOTAL: \$14,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J J CHATTOT ARC/F X CARADONNA 41-Aero Engr

**NCC 1-163 University of California - Davis 2267**  
FLOW PREDICTIONS OVER MULTI-ELEMENT HIGH-LIFT SYSTEMS  
*Period Obligations*  
04/06/1992-08/31/1994 FY93: \$10,000 TOTAL: \$52,635  
*Prin. Invest. NASA Tech. Officer CASE Category*  
C P VAN DAM LARC/L P YIP 41-Aero Engr

**NCC 2-99 University of California - Davis 2268**  
EFFICIENT CROP PRODUCTION USING UREA AMMONIA NITRITE  
AND NITRATE IN CLOSED ENVIRONMENTAL LIFE SUP SYS  
*Period Obligations*  
10/01/1980-11/30/1993 FY93: \$50,000 TOTAL: \$947,483  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R C HUFFAKER ARC/R D MACELROY 55-Agriculture Sci  
D W RAINS  
C O QUALSET

**NCC 2-624 University of California - Davis 2269**  
TECHNIQUES FOR THE DESIGN OF HIGH-BANDWIDTH ROTOR  
CRAFT FLIGHT CONTROL SYSTEMS  
*Period Obligations*  
07/20/1989-06/30/1993 FY93: \$0 TOTAL: \$239,242  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R A HESS ARC/M B TISCHLER 41-Aero Engr  
P GORDER ....J V LEBACQZ

**NCC 2-819 University of California - Davis 2270**  
DEVELOPMENT AND MAINTENANCE OF PERCEPTUAL PROCEDURAL  
AND MANUAL SKILLS IN AUTOMATED FLIGHT DECKS  
*Period Obligations*  
08/11/1993-11/30/1993 FY93: \$18,000 TOTAL: \$18,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R A HESS ARC/S M CASNER 69-Psych, NEC

**NCC 3-245 University of California - Davis 2271**  
COMBUSTION EXPERIMENTS IN REDUCED GRAVITY WITH TWO  
-COMPONENT MISCIBLE DROPLETS  
*Period Obligations*  
12/30/1991-04/19/1994 FY93: \$45,481 TOTAL: \$162,598  
*Prin. Invest. NASA Tech. Officer CASE Category*  
B D SHAW LERC/J B HAGGARD 46-Mech Engr  
.....H D ROSS

**NGT 00-030-153 University of California - Davis 2272**  
NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
11/02/1992-08/31/1994 FY93: \$44,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
E C CORDERO HQ/G ASRAR 31-Atmos Sci  
.....D M BUTLER

**NGT 00-030-167 University of California - Davis 2273**  
NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
08/24/1993-08/31/1996 FY93: \$21,782 TOTAL: \$21,782  
*Prin. Invest. NASA Tech. Officer CASE Category*  
T W FAN HQ/G ASRAR 39-Env Sci, NEC  
.....D M BUTLER

**NGT 00-030-200 University of California - Davis 2274**  
NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
08/26/1993-08/31/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
B C WEARE HQ/G ASRAR 31-Atmos Sci  
.....D M BUTLER

**NGT 00-050-458 University of California - Davis 2275**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
08/01/1989-06/30/1992 FY93: \$0 TOTAL: \$62,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
C A FULLER HQ/F C OWENS 51-Biological Sci

**NGT 00-070-207 University of California - Davis 2276**  
NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
MINORITY FOCUS PROGRAM  
*Period Obligations*  
06/28/1991-06/30/1992 FY93: \$0 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
A MCKILLOP HQ/J T LYNCH 46-Mech Engr

**NGT 00-090-152 University of California - Davis 2277**  
UNDERGRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
11/16/1992-08/14/1993 FY93: \$12,000 TOTAL: \$12,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R CRIDDLE HQ/D K RUSSELL 99-Multi-Discip

**NGT 00-090-153 University of California - Davis 2278**  
UNDERGRADUATED STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
11/16/1992-08/14/1993 FY93: \$12,000 TOTAL: \$12,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R CRIDDLE HQ/D K RUSSELL 99-Multi-Discip

**NAG 1-668 University of California - Irvine 2279**  
A LARGE-SCALE EMPIRICAL STUDY OF ERROR DETECTION USING  
SELF-TEST  
*Period Obligations*  
04/07/1986-03/31/1994 FY93: \$0 TOTAL: \$916,061  
*Prin. Invest. NASA Tech. Officer CASE Category*  
N G LEVESON LARC/D E ECKHARDT JR 22-Computer Science

**NASA'S UNIVERSITY PROGRAM  
CALIFORNIA (Continued)**

**NAG 1-783 University of California - Irvine 2280**  
TRACE GAS ANALYSIS FROM THE DC-8 AIRCRAFT  
*Period Obligations*  
06/16/1987-02/20/1994 FY93: \$185,027 TOTAL: \$1,274,194  
*Prin. Invest. NASA Tech. Officer CASE Category*  
F S ROWLAND LARC/J M HOELL 31-Atmos Sci  
...../J W DREWRY

**NAG 1-1515 University of California - Irvine 2281**  
THEORETICAL STUDIES OF THE CURRENT AIRCRAFT FLEET EXHAUST IN A 3-D TRACER MODEL AND SCATTERED RAD.  
*Period Obligations*  
06/04/1993-06/03/1994 FY93: \$53,000 TOTAL: \$53,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
M J PRATHER LARC/W L GROSE 31-Atmos Sci  
...../E E REMSBERG

**NAG 1-1533 University of California - Irvine 2282**  
TRACE GAS ANALYSIS FROM THE DC-8 AIRCRAFT: DATA ANALYSIS FOR PEM-WEST B NLPN 93-419  
*Period Obligations*  
07/19/1993-07/31/1994 FY93: \$185,705 TOTAL: \$185,705  
*Prin. Invest. NASA Tech. Officer CASE Category*  
F S ROWLAND LARC/J W DREWRY 31-Atmos Sci  
D R BLAKE ...../J M HOELL

**NAG 2-399 University of California - Irvine 2283**  
PHYSIOLOGY OF DEVELOPING GRAVITY RECEPTORS AND OTOCULAR REFLEXES IN RAT  
*Period Obligations*  
04/01/1986-03/31/1992 FY93: \$0 TOTAL: \$295,600  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R H BLANKS ARC/M D ROSS 51-Biological Sci  
...../E HOLTON

**NAG 2-555 University of California - Irvine 2284**  
EFFECTS OF ZERO GRAVITY EXPOSURE ON THE OXIDATIVE CAPACITY OF SKELETAL MUSCLE FIBER-TYPES  
*Period Obligations*  
01/24/1989-06/30/1994 FY93: \$146,069 TOTAL: \$888,083  
*Prin. Invest. NASA Tech. Officer CASE Category*  
K M BALDWIN ARC/A D MANDEL 51-Biological Sci  
...../C M WINGET

**NAG 2-695 University of California - Irvine 2285**  
THE IMPACT OF HIGH FLYING AIRCRAFT: MODEL STUDIES AND ANALYSIS  
*Period Obligations*  
03/01/1991-02/28/1993 FY93: \$0 TOTAL: \$20,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R J CICERONE ARC/O P CONDON 31-Atmos Sci  
I S ISAKSEN ...../O B TOON

**NAG 2-807 University of California - Irvine 2286**  
ANALYSIS OF AASE II CIO AND BRO RESULTS  
*Period Obligations*  
10/30/1992-09/30/1993 FY93: \$36,386 TOTAL: \$36,386  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D TOOHEY ARC/E CONDON 31-Atmos Sci

**NAG 3-627 University of California - Irvine 2287**  
IGNITION AND FLAME SPREAD OF LIQUID FUEL POOLS IN REDUCED GRAVITY  
*Period Obligations*  
03/04/1985-02/28/1994 FY93: \$72,434 TOTAL: \$671,392  
*Prin. Invest. NASA Tech. Officer CASE Category*  
W A SIRIGNANO LERC/H D ROSS 49-Engr, NEC  
...../R SACKSTEDGR

**NAG 3-1110 University of California - Irvine 2288**  
DETAILED STUDIES OF THE QUICK MIXING REGION IN RICH BURN LOW-NOX COMBUSTION  
*Period Obligations*  
01/04/1990-01/12/1994 FY93: \$120,540 TOTAL: \$468,462  
*Prin. Invest. NASA Tech. Officer CASE Category*  
G S SAMUELSEN LERC/J D HOLDEMAN 41-Aero Engr  
J J VALENTINI  
W A SOWA

**NAG 3-1124 University of California - Irvine 2289**  
DETAILED STUDIES OF DOME REGION FUEL/AIR MIXING IN RICH AND LEAN BURN LOW-NOX COMBUSTION  
*Period Obligations*  
01/04/1990-01/12/1994 FY93: \$124,924 TOTAL: \$535,194  
*Prin. Invest. NASA Tech. Officer CASE Category*  
G S SAMUELSEN LERC/R R TALINA 41-Aero Engr  
J J VALENTINI  
W A SONA

**NAG 5-1840 University of California - Irvine 2290**  
THE EFFECT OF CLIMATE ON THE STORAGE AND TURNOVER OF CARBON IN SOIL  
*Period Obligations*  
12/02/1991-12/31/1993 FY93: \$0 TOTAL: \$207,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
S TRUMBORE GSFC/L WALTER 39-Env Sci, NEC

**NAG 5-1897 University of California - Irvine 2291**  
SCIENTIFIC COMPUTING IN A RELIABLE MASSIVELY PARALLEL PROCESSOR  
*Period Obligations*  
02/20/1992-09/30/1993 FY93: \$36,000 TOTAL: \$111,308  
*Prin. Invest. NASA Tech. Officer CASE Category*  
I D SCHERSON GSFC/J E DORR BAND 22-Computer Science  
...../J R FISCHER

**NAG 5-2257 University of California - Irvine 2292**  
STRUCTURE AND DYNAMICS OF THE CORONAL MAGNETIC FIELD  
*Period Obligations*  
04/27/1993-04/30/1994 FY93: \$135,399 TOTAL: \$135,399  
*Prin. Invest. NASA Tech. Officer CASE Category*  
G V HOVEN GSFC/T J BIRMINGHAM 13-Physics  
...../J D BOHLIN

**NAG 5-2306 University of California - Irvine 2293**  
INPUT, ACCUMULATION AND TURNOVER OF CARBON IN BOREAL FOREST SOILS  
*Period Obligations*  
07/01/1993-07/14/1994 FY93: \$50,000 TOTAL: \$50,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
S TRUMBORE GSFC/F G HALL 39-Env Sci, NEC  
...../P SELLERS

# NASA'S UNIVERSITY PROGRAM CALIFORNIA (Continued)

**NAGW 212** **University of California - Irvine** **2294**  
MODELS OF ENERGY TRANSFORMATION DURING THE EARLY  
EVOLUTION OF LIFE  
*Period* *Obligations*  
08/01/1981-11/30/1992 FY93: \$0 TOTAL: \$794,640  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
T K LANYI HQ/J D RUMMEL 51-Biological Sci  
...../M AVERNER  
M V GOLDMAN

**NAGW 2738** **University of California - Irvine** **2301**  
GROUND-BASED TRACE GAS MEASUREMENTS IN CONJUNCTION  
WITH DC-8 TRACE-A MISSION  
*Period* *Obligations*  
09/25/1991-09/14/1994 FY93: \$0 TOTAL: \$299,138  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
F S ROWLAND HQ/A C JANETOS 39-Env Sci, NEC  
...../R T WATSON

**NAGW 452** **University of California - Irvine** **2295**  
LATITUDINAL GRADIENTS IN TROPOSPHERIC CONCENTRATIONS OF  
SELECTED HOLOCARBONS AND HYDROCARBONS  
*Period* *Obligations*  
04/27/1983-11/14/1993 FY93: \$207,772 TOTAL: \$1,755,314  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
F S ROWLAND HQ/M J KURYLO 31-Atmos Sci  
...../R T WATSON

**NAGW 2748** **University of California - Irvine** **2302**  
EFFECT OF LAND USE CHANGE ON THE CARBON CYCLE IN A  
MAZON SOILS  
*Period* *Obligations*  
09/25/1991-08/31/1993 FY93: \$0 TOTAL: \$170,676  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
S TRUMBORE HQ/A C JANETOS 39-Env Sci, NEC  
...../R T WATSON

**NAGW 2260** **University of California - Irvine** **2296**  
OBSERVATIONAL CONSTRAINTS AND EVOLUTIONARY MODELS FOR  
THE STRUCTURE, PROPERTIES AND TIMESCALES  
*Period* *Obligations*  
05/22/1991-11/30/1993 FY93: \$20,000 TOTAL: \$59,904  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
S P RUDEN HQ/J A NUTH 19-Phys Sci, NEC

**NAGW 2791** **University of California - Irvine** **2303**  
MODELING OF THE MAGNETIZED LOWER TRANSITION REGION AND  
TESTING OF ITS DIFFERENTIAL EMISSION MEASURE  
*Period* *Obligations*  
12/07/1991-10/31/1992 FY93: \$0 TOTAL: \$49,966  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
G VAN HOVEN HQ/W J WAGNER 13-Physics  
...../K LANG

**NAGW 2449** **University of California - Irvine** **2297**  
NAGW-2449/UNIV CA @ IRVINE/PLASMA DYNAMICS AND  
ENERGETICS IN THE SOLAR ATMOSPHERE  
*Period* *Obligations*  
06/03/1991-10/31/1991 FY93: \$84 TOTAL: \$50,559  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
G VAN HOVEN HQ/W J WAGNER 13-Physics  
...../K LANG

**NAGW 3053** **University of California - Irvine** **2304**  
NAGW-3053/UNIV CA @ IRVINE/PROCESSES CONTROLLING  
METHANE AND OTHER TRACE GAS FLUXES FROM TUNDRA  
*Period* *Obligations*  
04/17/1992-12/31/1993 FY93: \$0 TOTAL: \$153,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
W S REEBURGH HQ/A C JANETOS 39-Env Sci, NEC  
...../D E WICKLAND

**NAGW 2487** **University of California - Irvine** **2298**  
HEAT: HIGH ENERGY ANTIMATTER TELESCOPE  
*Period* *Obligations*  
06/10/1991-12/31/1993 FY93: \$50,000 TOTAL: \$145,201  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
S W BARWICK HQ/W V JONES 13-Physics  
...../J C LING

**NAGW 3163** **University of California - Irvine** **2305**  
NAGW-3163/UNIV CA @ IRVINE/3-D MODELING OF TROPOSPHERIC  
AND STRATOSPHERIC CHEMISTRY  
*Period* *Obligations*  
08/14/1992-04/30/1994 FY93: \$96,994 TOTAL: \$186,994  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
M J PRATHER HQ/J A KAYE 31-Atmos Sci  
...../R E MURPHY

**NAGW 2506** **University of California - Irvine** **2299**  
STUDIES OF PLASMA FLOWS PAST JUPITER SATELLITE IO  
*Period* *Obligations*  
07/25/1991-08/31/1992 FY93: \$0 TOTAL: \$55,165  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J LINKER HQ/M M MELLOTT 13-Physics  
...../J D BOHLIN

**NAS 1-19155** **University of California - Irvine** **2306**  
HALOE SCIENTIFIC INVESTIGATIONS  
*Period* *Obligations*  
05/01/1990-05/01/1995 FY93: \$87,000 TOTAL: \$292,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R CICERONE LARC/L E MAULDRIN 19-Phys Sci, NEC  
...../J M RUSSELL

**NAGW 2655** **University of California - Irvine** **2300**  
LABORATORY SIMULATION OF MAGNETOSPHERIC FIELD ALIGNED  
CURRENTS  
*Period* *Obligations*  
09/16/1991-05/31/1994 FY93: \$95,000 TOTAL: \$260,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
N ROSTOKER HQ/M M MELLOTT 13-Physics  
...../J D BOHLIN

**NCC 2-750** **University of California - Irvine** **2307**  
WHOLE-AIR SAMPLING FROM THE DC-8 AIRCRAFT DURING A  
ASE-II  
*Period* *Obligations*  
02/26/1992-10/31/1993 FY93: \$160,000 TOTAL: \$295,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
F S ROWLAND ARC/E P CONDON 31-Atmos Sci  
D R BLAKE ...../B TOON

**NASA'S UNIVERSITY PROGRAM**  
**CALIFORNIA (Continued)**

**NGT 00-030-067 University of California - Irvine 2308**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  

Period	Obligations
09/06/1991-08/31/1993	FY93: \$22,000 TOTAL: \$66,000
Prin. Invest.	NASA Tech. Officer CASE Category
M B DECKER	HQ/D M BUTLER 39-Env Sci, NEC
G L HUNT	....G S WILSON

**NGT 00-030-161 University of California - Irvine 2309**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  

Period	Obligations
08/24/1993-08/31/1996	FY93: \$22,000 TOTAL: \$22,000
Prin. Invest.	NASA Tech. Officer CASE Category
D W TOOHEY	HQ/G ASRAR 31-Atmos Sci
	....D M BUTLER

**NGT 00-030-163 University of California - Irvine 2310**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  

Period	Obligations
08/24/1993-08/31/1996	FY93: \$22,000 TOTAL: \$22,000
Prin. Invest.	NASA Tech. Officer CASE Category
R J CICERONE	HQ/G ASRAR 31-Atmos Sci
	....D M BUTLER

**NGT 00-050-551 University of California - Irvine 2311**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  

Period	Obligations
07/05/1990-06/30/1993	FY93: \$0 TOTAL: \$44,000
Prin. Invest.	NASA Tech. Officer CASE Category
W E SCHMITENDORF	HQ/F C OWENS 46-Mech Engr

**NGT 00-050-932 University of California - Irvine 2312**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  

Period	Obligations
09/17/1992-09/30/1994	FY93: \$22,000 TOTAL: \$44,000
Prin. Invest.	NASA Tech. Officer CASE Category
S P RUDEN	ARC/M MOORE 13-Physics

**NGT 00-070-352 University of California - Irvine 2313**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED MINORITY FOCUS PROGRAM  

Period	Obligations
09/02/1992-08/31/1994	FY93: \$22,000 TOTAL: \$22,000
Prin. Invest.	NASA Tech. Officer CASE Category
D RICHARDSON	HQ/D K RUSSELL 22-Computer Science

**NGT 00-090-071 University of California - Irvine 2314**  
 GSRP/UMF  

Period	Obligations
09/24/1992-08/14/1993	FY93: \$0 TOTAL: \$12,000
Prin. Invest.	NASA Tech. Officer CASE Category
F HERMES	HQ/D RUSSELL 99-Multi-Discip

**NGT 00-090-173 University of California - Irvine 2315**  
 UNDERGRADUATE STUDENT RESEARCHERS PROGRAM  

Period	Obligations
08/25/1993-08/14/1994	FY93: \$12,000 TOTAL: \$12,000
Prin. Invest.	NASA Tech. Officer CASE Category
F HERMES	HQ/D K RUSSELL 99-Multi-Discip

**NAG 1-833 University of California - Los Angeles 2316**  
 OPTIMAL STRUCTURAL DESIGN AND COMPOSITE HELICOPTER ROTOR BLADES WITH STRAIGHT AND SWEPT TIPS  

Period	Obligations
11/16/1987-11/15/1993	FY93: \$16,900 TOTAL: \$317,294
Prin. Invest.	NASA Tech. Officer CASE Category
P P FRIEDMANN	LARC/H M ADELMAN 41-Aero Engr
	....J I PRITCHARD

**NAG 1-1068 University of California - Los Angeles 2317**  
 ELECTROPHYSIOLOGICAL CORRELATES OF SYSTEM CONTROL PERFORMANCE DURING TASK UNDERLOAD; MEASUREMENT  

Period	Obligations
11/08/1989-11/02/1993	FY93: \$100,062 TOTAL: \$419,767
Prin. Invest.	NASA Tech. Officer CASE Category
M B STERMAN	LARC/R COMSTOCK 69-Psych, NEC

**NAG 1-1126 University of California - Los Angeles 2318**  
 INVESTIGATION OF HIGH ALTITUDE AIRCRAFT PLUMES AND CORTAILS: PHYSICAL AND CHEMICAL PROCESSES  

Period	Obligations
04/16/1990-09/30/1993	FY93: \$59,000 TOTAL: \$338,000
Prin. Invest.	NASA Tech. Officer CASE Category
B V SANKAR	LERC/L R POOLE 31-Atmos Sci

**NAG 1-1256 University of California - Los Angeles 2319**  
 OPTIMIZATION ROBUST GUIDANCE OF HYPERSONIC CRUISE VEHICLES - FDP  

Period	Obligations
05/30/1991-10/31/1993	FY93: \$34,604 TOTAL: \$132,816
Prin. Invest.	NASA Tech. Officer CASE Category
J L SPEYER	LARC/D D MOERDER 42-Astro Engr
	....W T SUIT

**NAG 1-1349 University of California - Los Angeles 2320**  
 NEW DIRECTIONS IN TARGET AND ANTENNA RCA STUDIES  

Period	Obligations
09/23/1991-09/30/1992	FY93: \$1 TOTAL: \$125,001
Prin. Invest.	NASA Tech. Officer CASE Category
N G ALEXOPOULOS	LARC/M C GILREATH 45-Elec Engr

**NAG 1-1428 University of California - Los Angeles 2321**  
 PROBLEMS WITH DIFFERENT TIME SCALES  

Period	Obligations
04/07/1992-09/30/1994	FY93: \$40,000 TOTAL: \$80,000
Prin. Invest.	NASA Tech. Officer CASE Category
H O KREISS	LARC/T B GATSKI 41-Aero Engr

**NAG 2-450 University of California - Los Angeles 2322**  
 VALIDATION OF MUSCLE VOLUME DETERMINATIONS BY MAGNETIC RESONANCE IMAGING  

Period	Obligations
04/01/1987-01/31/1994	FY93: \$76,840 TOTAL: \$811,867
Prin. Invest.	NASA Tech. Officer CASE Category
V R EDGERTON	ARC/R E GRINDELAND 56-Medical Sciences
T P MARTIN	
J A HODGSON	



**NASA'S UNIVERSITY PROGRAM  
CALIFORNIA (Continued)**

**NAG 2-477 University of California - Los Angeles 2323**  
A STUDY OF AEROMECHANICAL PROBLEMS WITH ACTIVE CON  
*Period Obligations*  
08/01/1987-09/30/1993 FY93: \$20,000 TOTAL: \$266,141  
*Prin. Invest. NASA Tech. Officer CASE Category*  
P FRIEDMANN ARC/S A JACKLIN 41-Aero Engr

**NAG 2-485 University of California - Los Angeles 2324**  
DATA ANALYSIS FOR THE PIONEER VENUS ELECTRIC  
FIELDETECTOR  
*Period Obligations*  
10/01/1987-01/31/1994 FY93: \$192,000 TOTAL: \$1,157,545  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R J STRANGEWAY ARC/R O FIMMEL 11-Astronomy  
....R A CRAIG

**NAG 2-501 University of California - Los Angeles 2325**  
ANALYSIS OF MAGNETIC FIELD DATA FROM THE PIONEER VENUS  
ORBITER  
*Period Obligations*  
10/01/1987-09/30/1993 FY93: \$235,000 TOTAL: \$2,292,052  
*Prin. Invest. NASA Tech. Officer CASE Category*  
C RUSSELL ARC/L E LASHER 11-Astronomy  
....R O FIMMEL

**NAG 2-604 University of California - Los Angeles 2326**  
AIRBORNE OBSERVATIONS OF EXTENDED RED GIANTS AND  
PLANETARY NEBULAE SELECTED WITH IRAS  
*Period Obligations*  
10/06/1989-09/30/1991 FY93: \$0 TOTAL: \$33,900  
*Prin. Invest. NASA Tech. Officer CASE Category*  
B M ZUCKERMAN ARC/L C HAUGHNEY 11-Astronomy

**NAG 2-717 University of California - Los Angeles 2327**  
FRENCH RHESUS PROJECT  
*Period Obligations*  
06/21/1991-12/31/1993 FY93: \$185,019 TOTAL: \$634,312  
*Prin. Invest. NASA Tech. Officer CASE Category*  
V R EDGERTON ARC/C M WINGET 51-Biological Sci  
R R ROY  
J A HODGSON

**NAG 2-799 University of California - Los Angeles 2328**  
INFRARED POLARIZATION STUDY OF THE GALACTIC CENTER ARC  
*Period Obligations*  
08/27/1992-09/30/1993 FY93: \$0 TOTAL: \$28,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
M R MORRIS ARC/C D LAUGHLIN 11-Astronomy  
....C M GILLESPIE

**NAG 2-805 University of California - Los Angeles 2329**  
CROSS CALIBRATION OF AN FSSP AND WIRE IMPACTOR IN A  
FAST-FLOW SYSTEM  
*Period Obligations*  
10/13/1992-11/30/1993 FY93: \$12,000 TOTAL: \$12,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J K LEW ARC/R F PUESCHEL 31-Atmos Sci  
....K G SNETSINGER

**NAG 2-822 University of California - Los Angeles 2330**  
MULTIOBJECTIVE OPTIMIZATION OF HYBRID REGENERATIVE LIFE  
SUPPORT TECHNOLOGIES  
*Period Obligations*  
12/18/1992-10/31/1993 FY93: \$73,708 TOTAL: \$73,708  
*Prin. Invest. NASA Tech. Officer CASE Category*  
V MANOUSIOUTHAKIS ARC/M G BALLIN 56-Medical Sciences  
....E C DUNSKY

**NAG 2-835 University of California - Los Angeles 2331**  
PROPOSAL FOR FUNDAMENTAL VALIDATION STUDIES AND  
EXPANSION OF THE CAPABILITIES OF THE 2GHAS COMPUTE  
*Period Obligations*  
05/20/1993-01/31/1994 FY93: \$24,932 TOTAL: \$24,932  
*Prin. Invest. NASA Tech. Officer CASE Category*  
P P FRIEDMAN ARC/M J RUTKOWSKI 41-Aero Engr

**NAG 3-451 University of California - Los Angeles 2332**  
THIN FILM TEMPERATURE SENSORS  
*Period Obligations*  
07/05/1983-12/31/1993 FY93: \$85,000 TOTAL: \$862,038  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R F BUNSHAH LERC/R HOLANDA 47-Materials Engr  
....W D WILLIAMS

**NAG 3-1290 University of California - Los Angeles 2333**  
HIGH TEMPERATURE LITHIUM ION CONDUCTING SOLIDS  
*Period Obligations*  
06/27/1991-09/14/1993 FY93: \$0 TOTAL: \$80,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
B S DUNN LERC/N H HAGEDORN 12-Chemistry

**NAG 3-1325 University of California - Los Angeles 2334**  
EVALUATION OF THE EFFECT OF MICROALLOYING ON CLEAV AGE  
OF MONOCRYST NIA1 USING A MINI DISK-BEND TEST  
*Period Obligations*  
02/07/1992-02/28/1994 FY93: \$50,000 TOTAL: \$100,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
A J ARDELL LERC/R D NORBE 47-Materials Engr  
....M V NATHAL

**NAG 3-1419 University of California - Los Angeles 2335**  
MICROGRAVITY FOAM STRUCTURE AND RHEOLOGY  
*Period Obligations*  
12/15/1992-12/14/1993 FY93: \$50,000 TOTAL: \$50,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D DURIAN LERC/J GLASGOW 47-Materials Engr  
....R ANSARI

**NAG 3-1456 University of California - Los Angeles 2336**  
STABILIZATION OF THERMOCAPILLARY CONVECTION BY MEA NS  
OF NONPLANAR FLOW OSCILLATIONS  
*Period Obligations*  
02/22/1993-02/15/1994 FY93: \$80,020 TOTAL: \$80,020  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R E KELLY LERC/R L THOMPSON 46-Mech Engr

**NAG 3-1503 University of California - Los Angeles 2337**  
MAGNETOSPHERIC MAPPING SAMPLING STUDY  
*Period Obligations*  
06/24/1993-08/15/1993 FY93: \$10,000 TOTAL: \$10,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
C T RUSSELL LERC/J M HICKMAN 13-Physics

**NASA'S UNIVERSITY PROGRAM  
CALIFORNIA (Continued)**

**NAG 5-447 University of California - Los Angeles 2338**  
RESEARCH RELATIVE TO TECTONIC DEFORMATION IN CALIFORNIA  
*Period* *Obligations*  
07/15/1984-12/31/1991 FY93: \$0 TOTAL: \$450,927  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
D D JACKSON GSFC/H V FREY 32-Geological Sci

**NAG 5-488 University of California - Los Angeles 2339**  
A THEORETICAL INVESTIGATION OF AURORAL DYNAMICS  
*Period* *Obligations*  
03/01/1985-02/28/1993 FY93: \$0 TOTAL: \$520,847  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J E MAGGS GSFC/G D BULLOCK 19-Phys Sci, NEC  
....R A HOFFMAN

**NAG 5-575 University of California - Los Angeles 2340**  
COORDINATED ULTRAVIOLET/OPTIC/INFRARED OBSERVATIONS OF POLARIZED QUASARS: STUDY OF LONG EXPOSURE O  
*Period* *Obligations*  
07/01/1985-12/31/1991 FY93: \$0 TOTAL: \$210,100  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
M A MALKAN GSFC/D WEST 11-Astronomy  
W H SUN

**NAG 5-713 University of California - Los Angeles 2341**  
ESTIMATION THEORY SATELLITE DATA ASSIMILATION AND ATMOSPHERIC PREDICTABILITY  
*Period* *Obligations*  
09/15/1985-04/30/1994 FY93: \$90,000 TOTAL: \$903,999  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
M GHIL GSFC/J PFAENDTNER 31-Atmos Sci

**NAG 5-789 University of California - Los Angeles 2342**  
NUMERICAL MODELING OF THE GLOBAL ATMOSPHERE  
*Period* *Obligations*  
06/01/1986-10/31/1993 FY93: \$50,000 TOTAL: \$693,890  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
A ARAKAWA GSFC/M SUAREZ 31-Atmos Sci

**NAG 5-863 University of California - Los Angeles 2343**  
DATA ANALYSIS OF THE CHARGED COMPOSITION EXPLORER PLASMA WAVES EXPERIMENT  
*Period* *Obligations*  
11/15/1986-04/14/1994 FY93: \$30,000 TOTAL: \$353,598  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R J STRONGWAY GSFC/S A CURTIS 13-Physics  
....M H ACUNA

**NAG 5-1040 University of California - Los Angeles 2344**  
SATELLITE GRADIOMETER STUKDIES AND THREE DIMENSIONAL MODELING OF SMALL SCALE CONVECTION BENEATH THE OC  
*Period* *Obligations*  
03/15/1988-12/31/1992 FY93: \$0 TOTAL: \$253,488  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
W KAULA GSFC/J E WELKER 32-Geological Sci

**NAG 5-1067 University of California - Los Angeles 2345**  
ANALYSIS OF THE ISEE MAGNETOMETER EXPERIMENT DATA  
*Period* *Obligations*  
08/01/1988-11/30/1991 FY93: \$0 TOTAL: \$670,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
C T RUSSELL GSFC/R O WALES 19-Phys Sci, NEC

**NAG 5-1100 University of California - Los Angeles 2346**  
THEORETICAL TECHNOLOGY RESEARCH FOR THE ISTEP  
*Period* *Obligations*  
11/01/1988-10/31/1993 FY93: \$513,000 TOTAL: \$1,722,905  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
M A ABDALLA GSFC/S A CURTIS 13-Physics  
....M H ACUNA

**NAG 5-1166 University of California - Los Angeles 2347**  
CALIBRATION OF MAGNETICALLY INDUCED SOLAR VELOCITY  
*Period* *Obligations*  
07/15/1989-01/31/1994 FY93: \$50,000 TOTAL: \$364,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R K ULRICH GSFC/A I POLAND 11-Astronomy

**NAG 5-1167 University of California - Los Angeles 2348**  
PARTICIPATION IN CLUSTER MAGNETOMETER CONSORTIU  
*Period* *Obligations*  
07/15/1989-07/14/1994 FY93: \$20,530 TOTAL: \$384,054  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
M G KIVELSON GSFC/M ACUNA 13-Physics

**NAG 5-1309 University of California - Los Angeles 2349**  
COBE DATA ANALYSIS AND ATTITUDE VALIDATION  
*Period* *Obligations*  
11/15/1989-12/31/1993 FY93: \$121,042 TOTAL: \$447,742  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
E L WRIGHT GSFC/J MATHER 11-Astronomy

**NAG 5-1358 University of California - Los Angeles 2350**  
GROUND AND SPACE-BASED MULTIWAVELENGTH OBSERVATIONS  
*Period* *Obligations*  
04/11/1990-05/31/1993 FY93: \$0 TOTAL: \$147,800  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
M A MALKAN GSFC/D WEST 11-Astronomy

**NAG 5-1406 University of California - Los Angeles 2351**  
SEARCH POSSIBLE COMPANIES 3-ANOMALOUS CARBON STARS  
*Period* *Obligations*  
08/21/1990-09/14/1992 FY93: \$0 TOTAL: \$5,900  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
M A JURA GSFC/D WEST 11-Astronomy

**NAG 5-1440 University of California - Los Angeles 2352**  
EMBEDDED SYSTEMS SOFTWARE ASSESSMENT/ENHANCEMENT  
*Period* *Obligations*  
08/20/1990-09/14/1993 FY93: \$80,000 TOTAL: \$210,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
G APOSTOLAKIS GSFC/L E HYATT 22-Computer Science  
S B GUARRO

**NASA'S UNIVERSITY PROGRAM  
CALIFORNIA (Continued)**

**NAG 5-1480 University of California - Los Angeles 2353**  
MAGNETOSPHERIC MHD AND KINETIC PROCESSES  
*Period Obligations*  
11/19/1990-04/30/1994 FY93: \$155,000 TOTAL: \$775,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
M ASHOUR-ABDALLA GSFC/T J BIRMINGHAM 13-Physics

**NAG 5-2140 University of California - Los Angeles 2360**  
ULTRAVIOLET SPECTRA OF THE COMPLETE 12-MICRON SEYF ERT  
1 GALAXY SAMPLE  
*Period Obligations*  
11/23/1992-01/31/1994 FY93: \$5,940 TOTAL: \$5,940  
*Prin. Invest. NASA Tech. Officer CASE Category*  
M A MALKAN GSFC/D WEST 11-Astronomy

**NAG 5-1529 University of California - Los Angeles 2354**  
STUDIES OF THE LOBES OF THE MAGNETOTAIL USING ISEE ,  
AMPTE, AND IMP DATA  
*Period Obligations*  
04/08/1991-04/14/1994 FY93: \$55,149 TOTAL: \$158,529  
*Prin. Invest. NASA Tech. Officer CASE Category*  
M G KIVELSON GSFC/G D BULLOCK 19-Phys Sci, NEC

**NAG 5-2178 University of California - Los Angeles 2361**  
STUDIES OF THE INTERSTELLAR MEDIUM WITH THE GHRS  
*Period Obligations*  
01/11/1993-01/14/1994 FY93: \$51,400 TOTAL: \$51,400  
*Prin. Invest. NASA Tech. Officer CASE Category*  
M A JURA GSFC/A SMITH 11-Astronomy

**NAG 5-1530 University of California - Los Angeles 2355**  
STUDIES OF FLOWS IN MAGNETOTAIL  
*Period Obligations*  
04/08/1991-04/14/1994 FY93: \$46,411 TOTAL: \$133,034  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R J WALKER GSFC/G D BULLOCK 19-Phys Sci, NEC

**NAG 5-2224 University of California - Los Angeles 2362**  
DEVELOPMENT OF AN EARTH SYSTEM MODEL: ATMOSPHERE/  
OCEAN DYNAMICS AND TRACERS CHEMISTRY  
*Period Obligations*  
02/25/1993-11/30/1993 FY93: \$325,000 TOTAL: \$325,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
C R MECHOSO GSFC/J R FISCHER 31-Atmos Sci  
A ARAKAWA  
R P TURCO

**NAG 5-1719 University of California - Los Angeles 2356**  
X-RAY AND MULTI-FREQUENCY OBSERVATIONS OF A COMPLETE  
OPTICALLY SELECTED SAMPLE OF SEYFERT GALAXIES  
*Period Obligations*  
08/13/1991-09/30/1993 FY93: \$45,000 TOTAL: \$77,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
M A MALKAN GSFC/R PETRE 11-Astronomy

**NAG 5-2225 University of California - Los Angeles 2363**  
DATA ANALYSIS AND KNOWLEDGE DISCOVERY IN GEOPHYSICAL  
DATABASES  
*Period Obligations*  
03/01/1993-11/30/1993 FY93: \$176,000 TOTAL: \$176,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R MUNTZ GSFC/J R FISCHER 22-Computer Science

**NAG 5-1799 University of California - Los Angeles 2357**  
AN INTENSIVE STUDY OF THE VARIABLE PLANETARY NEBULAE  
*Period Obligations*  
10/30/1991-01/31/1994 FY93: \$6,270 TOTAL: \$24,270  
*Prin. Invest. NASA Tech. Officer CASE Category*  
L H ALLER GSFC/D WEST 11-Astronomy

**NAG 8-247 University of California - Los Angeles 2364**  
JOVE  
*Period Obligations*  
09/15/1992-09/14/1993 FY93: \$0 TOTAL: \$23,033  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R L MCPHERRON MSFC/F SIX 31-Atmos Sci

**NAG 5-1845 University of California - Los Angeles 2358**  
VOLCANIC CLOUD DISPERSION CHEMISTRY AND MICROPHYSICS:  
AN ANALYSIS OF THE EL CHICHON ERUPTION  
*Period Obligations*  
12/12/1991-02/28/1994 FY93: \$20,500 TOTAL: \$71,880  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R P TURCO GSFC/L S WALTER 32-Geological Sci

**NAG 9-27 University of California - Los Angeles 2365**  
ISOTOPIC ANALYSIS OF LIGHT ELEMENTS  
*Period Obligations*  
02/01/1983-03/01/1994 FY93: \$0 TOTAL: \$496,012  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J F KERRIDGE JSC/I D BROWNE 12-Chemistry  
I R KAPLAN

**NAG 5-1967 University of California - Los Angeles 2359**  
MAGNETOMETER DATA PRESERVATIONS AND MAGNETIC RECORD  
MICROFICHE  
*Period Obligations*  
05/06/1992-06/14/1994 FY93: \$100,000 TOTAL: \$191,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
C RUSSELL GSFC/G BULLOCK 19-Phys Sci, NEC

**NAG 9-40 University of California - Los Angeles 2366**  
GEOCHEMICAL STUDIES LUNAR MATERIALS  
*Period Obligations*  
02/01/1983-02/01/1994 FY93: \$0 TOTAL: \$1,577,400  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J T WASSON JSC/I D BROWNE 32-Geological Sci  
J M GROSSMAN  
A E RUBIN

# NASA'S UNIVERSITY PROGRAM CALIFORNIA (Continued)

**NAG 9-87 University of California - Los Angeles 2367**  
STUDY-PRISTINE LUNAR ROCKS + GENESIS  
Period Obligations  
02/01/1984-03/01/1994 FY93: \$0 TOTAL: \$855,539  
Prin. Invest. NASA Tech. Officer CASE Category  
P H WARREN JSC/I D BROWNE 19-Phys Sci, NEC  
G W KALLEMEYN

**NAG 9-323 University of California - Los Angeles 2368**  
TENSION DEVELOPMENT MUSCULAR ATROPHY  
Period Obligations  
12/01/1988-04/01/1994 FY93: \$0 TOTAL: \$179,599  
Prin. Invest. NASA Tech. Officer CASE Category  
C E KASPER JSC/C F SAMS 51-Biological Sci

**NAGW 80 University of California - Los Angeles 2369**  
RESEARCH ON THEORETICAL STUDIES OF EXTRAGALACTIC GRAINS  
Period Obligations  
10/01/1980-09/30/1993 FY93: \$0 TOTAL: \$372,623  
Prin. Invest. NASA Tech. Officer CASE Category  
M A JURA HQ/F C GILLET 11-Astronomy  
..../N W BOGESS

**NAGW 87 University of California - Los Angeles 2370**  
STUDIES OF PLASMA ENVIRONMENT OF JUPITER AND SATURN  
Period Obligations  
07/01/1980-11/30/1993 FY93: \$59,500 TOTAL: \$640,933  
Prin. Invest. NASA Tech. Officer CASE Category  
R M THORNE HQ/J T BERGSTRAHL 31-Atmos Sci  
..../W L QUAIDE

**NAGW 347 University of California - Los Angeles 2371**  
ISOTOPIC CHARACTERIZATION OF PREBIOTIC SYNTHESIS OF ORGANIC MATTER  
Period Obligations  
07/01/1982-12/31/1992 FY93: \$0 TOTAL: \$615,152  
Prin. Invest. NASA Tech. Officer CASE Category  
J F KERRIDGE HQ/J D RUMMEL 12-Chemistry  
..../M SOUNER

**NAGW 472 University of California - Los Angeles 2372**  
THEORETICAL STUDIES IN SUPPORT OF A SOLAR SEISMOLOGY MISSION  
Period Obligations  
06/01/1983-10/31/1993 FY93: \$178,000 TOTAL: \$1,408,174  
Prin. Invest. NASA Tech. Officer CASE Category  
R ULRICH HQ/J D BOHLIN 13-Physics  
..../D S SPICER

**NAGW 1021 University of California - Los Angeles 2373**  
GENERAL CIRCULATION OF THE SOUTHERN HEMISPHERE STRATOSPHERE  
Period Obligations  
05/01/1987-12/31/1993 FY93: \$123,500 TOTAL: \$601,803  
Prin. Invest. NASA Tech. Officer CASE Category  
C R MECHOSO HQ/R D MCPETERS 31-Atmos Sci  
..../M J PRATHER

**NAGW 1347 University of California - Los Angeles 2374**  
AERONOMICAL PECULIARITIES OF THE UNMAGNETIZED PLANETS  
Period Obligations  
06/28/1988-11/30/1993 FY93: \$83,659 TOTAL: \$413,587  
Prin. Invest. NASA Tech. Officer CASE Category  
J G LUHMANN HQ/J T BERGSTRAHL 13-Physics  
..../W L QUAIDE

**NAGW 1558 University of California - Los Angeles 2375**  
PLASMA PHYSICS OF PLANETARY MAGNETOSPHERES  
Period Obligations  
12/08/1988-12/31/1991 FY93: \$0 TOTAL: \$128,500  
Prin. Invest. NASA Tech. Officer CASE Category  
D D BARBOSA HQ/M M MELLOTT 13-Physics  
..../T W PERRY

**NAGW 1570 University of California - Los Angeles 2376**  
LABORATORY MODELING OF MAGNETOSPHERIC PARTICLE ACCELERATIONS  
Period Obligations  
12/21/1988-02/28/1994 FY93: \$83,000 TOTAL: \$400,228  
Prin. Invest. NASA Tech. Officer CASE Category  
R L STENZEL HQ/M M MELLOTT 13-Physics  
..../T W PERRY

**NAGW 1624 University of California - Los Angeles 2377**  
SPACE PLASMA PHYSICS AT UCLA  
Period Obligations  
03/01/1989-02/28/1994 FY93: \$31,500 TOTAL: \$373,850  
Prin. Invest. NASA Tech. Officer CASE Category  
C F KENNEL HQ/M M MELLOTT 13-Physics  
..../T W PERRY

**NAGW 1635 University of California - Los Angeles 2378**  
ELECTRON DYNAMICS IN THE AURORAL PLASMA  
Period Obligations  
02/24/1989-12/31/1992 FY93: \$0 TOTAL: \$256,500  
Prin. Invest. NASA Tech. Officer CASE Category  
J E MAGGS HQ/M M MELLOTT 13-Physics  
..../T W PERRY

**NAGW 1639 University of California - Los Angeles 2379**  
JOVIAN AURORAL PROCESSES  
Period Obligations  
02/28/1989-09/30/1992 FY93: \$0 TOTAL: \$191,230  
Prin. Invest. NASA Tech. Officer CASE Category  
R M THORNE HQ/M M MELLOTT 13-Physics  
..../T W PERRY

**NAGW 1649 University of California - Los Angeles 2380**  
STUDIES OF DYNAMICS OF MAGNETOPAUSE AND SHOCK WAVES  
Period Obligations  
03/02/1989-12/31/1991 FY93: \$0 TOTAL: \$154,500  
Prin. Invest. NASA Tech. Officer CASE Category  
J M DAWSON HQ/M M MELLOTT 13-Physics  
..../T W PERRY

**NAGW 1874 University of California - Los Angeles 2381**  
DYNAMICAL STUDIES OF THE ATMOSPHERES OF VENUS, JUPITER, AND IO  
Period Obligations  
01/03/1990-10/31/1993 FY93: \$94,340 TOTAL: \$266,339  
Prin. Invest. NASA Tech. Officer CASE Category  
G SCHUBERT HQ/J BERGSTRAHL 11-Astronomy

# NASA'S UNIVERSITY PROGRAM CALIFORNIA (Continued)

**NAGW 2047 University of California - Los Angeles 2382**  
AN INVESTIGATION OF THE STRUCTURE AND MOTION OF THE JOVIAN MAGNETOSPHERE

Period	Obligations	
05/05/1990-03/31/1994	FY93: \$35,000	TOTAL: \$124,358
Prin. Invest.	NASA Tech. Officer	CASE Category
K K KHURANA	HQ/M M MELLOTT	13-Physics
	....T PERRY	

**NAGW 2054 University of California - Los Angeles 2383**  
SUBSTORM DYNAMICS IN THE NEAR-EARTH MAGNETOTAIL

Period	Obligations	
05/05/1990-03/31/1994	FY93: \$60,000	TOTAL: \$206,726
Prin. Invest.	NASA Tech. Officer	CASE Category
R MCPHERRON	HQ/M M MELLOTT	13-Physics
	....T PERRY	

**NAGW 2063 University of California - Los Angeles 2384**  
MARS POLAR SURFACE AND SUBSURFACE PROPERTIES

Period	Obligations	
04/10/1990-09/30/1993	FY93: \$6,000	TOTAL: \$117,999
Prin. Invest.	NASA Tech. Officer	CASE Category
D A PAIGE	HQ/J M BOYCE	32-Geological Sci

**NAGW 2067 University of California - Los Angeles 2385**  
NAGW-2067/UNIV OF CALIF/DETERMINATION OF THE SOURCE MECHANISMS FOR ULF WAVES USING A CLOSELY SPACED

Period	Obligations	
04/19/1990-03/31/1993	FY93: \$0	TOTAL: \$138,114
Prin. Invest.	NASA Tech. Officer	CASE Category
C T RUSSELL	HQ/M M MELLOTT	13-Physics
	....T PERRY	

**NAGW 2085 University of California - Los Angeles 2386**  
DYNAMICS OF THE ORIGIN OF THE SOLAR SYSTEM

Period	Obligations	
07/23/1990-10/31/1993	FY93: \$42,800	TOTAL: \$153,800
Prin. Invest.	NASA Tech. Officer	CASE Category
W H KAULA	HQ/T A MAXWELL	32-Geological Sci

**NAGW 2086 University of California - Los Angeles 2387**  
THERMAL AND DYNAMICAL PROCESSES IN THE EVOLUTION OF PLANETS AND SATELLITES

Period	Obligations	
05/14/1990-09/30/1993	FY93: \$47,000	TOTAL: \$155,654
Prin. Invest.	NASA Tech. Officer	CASE Category
G SCHUBERT	HQ/T A MAXWELL	32-Geological Sci

**NAGW 2147 University of California - Los Angeles 2388**  
NAGW-2147/UNIV OF CA @ LOS ANGELES/PAEIOBIOLOGIC STUDIES OF THE ANTIQUITY AND PRECAMBIAN EVOLUTION

Period	Obligations	
07/13/1990-12/31/1993	FY93: \$77,499	TOTAL: \$302,007
Prin. Invest.	NASA Tech. Officer	CASE Category
J W SCHOPF	HQ/J D RUMNEL	32-Geological Sci
	....S W FOGLEMAN	

**NAGW 2183 University of California - Los Angeles 2389**  
NAGW-2182/UNIV OF CA @ LOS ANGELES/INVESTIGATION OF THE PHYSICS AND PHYSICAL CHEMISTRY OF POLAR STRAT

Period	Obligations	
07/12/1990-06/30/1993	FY93: \$0	TOTAL: \$364,400
Prin. Invest.	NASA Tech. Officer	CASE Category
R P TURCO	HQ/R D MCPETERS	13-Physics
	....M J PRATHER	

**NAGW 2226 University of California - Los Angeles 2390**  
UNUSUAL PROPERTIES OF MARTIAN SEASONAL FROST DEPOSITS

Period	Obligations	
02/27/1991-10/31/1993	FY93: \$40,000	TOTAL: \$120,000
Prin. Invest.	NASA Tech. Officer	CASE Category
D A PAIGE	HQ/T A MAXWELL	32-Geological Sci

**NAGW 2243 University of California - Los Angeles 2391**  
NAGW-2243/UNIV CA @ LOS ANGELES/METEORITIC CLUSES REGARDING NEBULAR AND ASTEROIDAL TEMPERATURES

Period	Obligations	
06/13/1991-10/31/1993	FY93: \$40,000	TOTAL: \$120,000
Prin. Invest.	NASA Tech. Officer	CASE Category
J T WASSON	HQ/J A NUTH	19-Phys Sci, NEC

**NAGW 2269 University of California - Los Angeles 2392**  
FRAGMENTATION IN STLLAR COLLAPSE

Period	Obligations	
05/21/1991-10/31/1993	FY93: \$44,999	TOTAL: \$134,998
Prin. Invest.	NASA Tech. Officer	CASE Category
W M KAULA	HQ/J A NUTH	19-Phys Sci, NEC

**NAGW 2270 University of California - Los Angeles 2393**  
A SEARCH FOR BROWN DWARFS AND HIGH MASS PLANETS

Period	Obligations	
12/07/1990-10/31/1993	FY93: \$45,000	TOTAL: \$135,000
Prin. Invest.	NASA Tech. Officer	CASE Category
B M ZUCKERMAN	HQ/J A NUTH	19-Phys Sci, NEC

**NAGW 2295 University of California - Los Angeles 2394**  
AN INVESTIGATION OF SOLAR WIND EFFECTS ON THE EVOL UTION OF THE MARTIAN ATMOSPHERE

Period	Obligations	
03/06/1991-11/30/1993	FY93: \$25,000	TOTAL: \$90,100
Prin. Invest.	NASA Tech. Officer	CASE Category
J LUHMANN	HQ/W L QUAIDE	32-Geological Sci

**NAGW 2349 University of California - Los Angeles 2395**  
INVESTIGATION OF THE INTERACTION OF MARS AND COMET S WITH SOLAR WIND

Period	Obligations	
05/21/1991-11/30/1991	FY93: \$0	TOTAL: \$60,000
Prin. Invest.	NASA Tech. Officer	CASE Category
C T RUSSELL	HQ/J T BERGSTRALH	11-Astronomy

**NAGW 2384 University of California - Los Angeles 2396**  
MARS 94 SEISMOLOGY PARTICIPATION

Period	Obligations	
06/17/1991-01/31/1994	FY93: \$25,000	TOTAL: \$75,600
Prin. Invest.	NASA Tech. Officer	CASE Category
P M DAVIS	HQ/W QUAIDE	19-Phys Sci, NEC

**NASA'S UNIVERSITY PROGRAM  
CALIFORNIA (Continued)**

**NAGW 2397 University of California - Los Angeles 2397**  
THE ANALYSIS AND INTERPRETATION OF VOYAGER PLASMA WAVE  
DATA: VOYAGER NEPTUNE DATA ANALYSIS PROGRAM  
*Period* *Obligations*  
03/01/1991-12/31/1993 FY93: \$35,000 TOTAL: \$105,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
D D BARBOSA HQ/W L QUAIDE 19-Phys Sci, NEC

**NAGW 2409 University of California - Los Angeles 2398**  
NEPTUNE MAGNETOSPHERE DATA ANALYSIS  
*Period* *Obligations*  
06/24/1991-12/31/1993 FY93: \$88,200 TOTAL: \$247,700  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
G L SISCOE HQ/W L QUAIDE 19-Phys Sci, NEC

**NAGW 2546 University of California - Los Angeles 2399**  
THEORY OF GEODYNAMO AND SECULAR VARIATION  
*Period* *Obligations*  
08/20/1991-05/31/1994 FY93: \$70,000 TOTAL: \$209,865  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
P ROBERTS HQ/A J ANDERSON 32-Geological Sci  
....R E MURPHY

**NAGW 2573 University of California - Los Angeles 2400**  
CO-INVESTIGATOR PARTICIPATION IN THE MARS '94 MISSION:  
STUDIES OF THE MARTIAN MAGNETIC FIELD  
*Period* *Obligations*  
08/22/1991-01/31/1994 FY93: \$44,700 TOTAL: \$111,500  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
C T RUSSELL HQ/W L QUAIDE 19-Phys Sci, NEC

**NAGW 2575 University of California - Los Angeles 2401**  
CO-INVESTIGATOR PARTICIPATION IN THE MARS '94 MISSION  
STUDIES: TOPSIDE SOUNDER AND MAGNETOMETER  
*Period* *Obligations*  
08/02/1991-01/31/1994 FY93: \$18,326 TOTAL: \$32,226  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J LUHMANN HQ/W L QUAIDE 19-Phys Sci, NEC

**NAGW 2620 University of California - Los Angeles 2402**  
DISRUPTION OF TAIL CURRENT BY KINETIC DRIFT-BALLOONING  
MODES AT SUBSTORM BREAK-UP  
*Period* *Obligations*  
08/02/1991-05/31/1994 FY93: \$34,000 TOTAL: \$167,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R PELLAT HQ/M M MELLOTT 13-Physics  
....J D BOHLIN

**NAGW 2646 University of California - Los Angeles 2403**  
NAGW-2646/UNIV CA/THREE-DIMENSIONAL NUMERICAL SIMU-  
LATIONS OF LITHOSPHERE AND MANTLE DYNAMICS  
*Period* *Obligations*  
08/19/1991-06/30/1994 FY93: \$92,987 TOTAL: \$256,986  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
G SCHUBERT HQ/M BALTUCK 32-Geological Sci  
....B J MALCOLM

**NAGW 2842 University of California - Los Angeles 2404**  
CONTAINERLESS CAPILLARY WAVE TURBULENCE  
*Period* *Obligations*  
01/17/1992-11/30/1993 FY93: \$85,000 TOTAL: \$170,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
S J PUTTERMAN HQ/B M CARPENTER 13-Physics  
M BARMATZ

**NAGW 2848 University of California - Los Angeles 2405**  
MHD STUDIES OF THE MAGNETOSHEATH AND THE MAGNETOPAU-  
SE  
*Period* *Obligations*  
01/24/1992-03/31/1994 FY93: \$65,000 TOTAL: \$130,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
C C WU HQ/M M MELLOTT 13-Physics  
....J D BOHLIN

**NAGW 2853 University of California - Los Angeles 2406**  
THEORETICAL MODELING OF THE RESPONSE OF THE THERMO-  
SPHERE TO GEOMAGNETIC PROCESSES  
*Period* *Obligations*  
03/13/1992-04/30/1993 FY93: \$0 TOTAL: \$75,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R P TURCO HQ/D L REASONER 13-Physics  
....J D BOHLIN

**NAGW 2886 University of California - Los Angeles 2407**  
STUDY OF THE INTERACTION OF THE SOLAR WIND WITH NEP-  
TUNE  
*Period* *Obligations*  
02/20/1992-03/31/1994 FY93: \$57,677 TOTAL: \$112,352  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
C T RUSSELL HQ/W L QUAIDE 19-Phys Sci, NEC

**NAGW 2997 University of California - Los Angeles 2408**  
FINITE ELEMENT MODELING OF ANDEAN TECTONICS  
*Period* *Obligations*  
03/17/1992-12/31/1993 FY93: \$63,001 TOTAL: \$124,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
W M KAULA HQ/R E MURPHY 32-Geological Sci  
....D M BUTLER

**NAGW 3042 University of California - Los Angeles 2409**  
NAGW-3042/UNIV CA @ LOS ANGELES/GLOBAL DYNAMIC MOD-  
ELING OF SPACE-GEODETIC DATA  
*Period* *Obligations*  
04/16/1992-12/31/1993 FY93: \$61,419 TOTAL: \$118,970  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
P BIRD HQ/R E MURPHY 32-Geological Sci  
....D M BUTLER

**NAGW 3064 University of California - Los Angeles 2410**  
NAGW-3064/UNIV CA @ LOS ANGELES/ISOTOPIC TRACERS OF  
INTERSTELLAR CHEMISTRY IN METEORITIC ORGANIC  
*Period* *Obligations*  
05/04/1992-05/31/1994 FY93: \$28,630 TOTAL: \$57,260  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J F KERRIDGE HQ/J A NUTH 19-Phys Sci, NEC

# **NASA'S UNIVERSITY PROGRAM** **CALIFORNIA (Continued)**

**NAGW 3096 University of California - Los Angeles 2411**  
NAGW-3096/UNIV CA/THE UCLA INTERNATIONAL CONFERENCE ON GAMMA RAY AND NEUTRINO COSMOLOGY

Period	Obligations	
06/16/1992-03/31/1993	FY93: \$0	TOTAL: \$3,500
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
D B CLINE	HQ/R V STACHNIK	11-Astronomy
	....E J WEILER	

**NAGW 3349 University of California - Los Angeles 2418**  
ISOTOPIC ANALYSIS OF LIGHT ELEMENTS

Period	Obligations	
01/13/1993-11/30/1994	FY93: \$41,200	TOTAL: \$41,200
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
J F KERRIDGE	HQ/H C BRINTON	13-Physics

**NAGW 3098 University of California - Los Angeles 2412**  
NAGW-3098/UNIV CA/MAGNETOSPHERES OF THE OUTER PLANETS CONFERENCE

Period	Obligations	
06/16/1992-05/31/1993	FY93: \$0	TOTAL: \$7,500
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
M KIVELSON	HQ/H C BRINTON	11-Astronomy

**NAGW 3426 University of California - Los Angeles 2419**  
ASSESSMENT OF ION SCAVENGING PROCESSES AT VENUS AND THEIR EVOLUTIONARY SIGNIFICANCE

Period	Obligations	
02/24/1993-06/30/1994	FY93: \$46,318	TOTAL: \$46,318
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
J G LUHMAN	HQ/J T BERGSTRALH	31-Atmos Sci

**NAGW 3115 University of California - Los Angeles 2413**  
NAGW-3115/UNIV CA/ISO KEY PROJECT: DUST DEBRIS AROUND SOLAR MASS STARS

Period	Obligations	
07/27/1992-09/30/1994	FY93: \$70,000	TOTAL: \$139,819
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
E E BECKLIN	HQ/L J CAROFF	11-Astronomy

**NAGW 3468 University of California - Los Angeles 2420**  
DEFINITION AND DEVELOPMENT OF A PROTOTYPE MARS SEISMIC STATION

Period	Obligations	
04/09/1993-05/31/1994	FY93: \$100,000	TOTAL: \$100,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
P M DAVIS	HQ/H C BRINTON	19-Phys Sci, NEC

**NAGW 3132 University of California - Los Angeles 2414**  
DYNAMICS OF OUTER SOLAR SYSTEM ORIGIN AND EVOLUTION

Period	Obligations	
07/14/1992-05/31/1994	FY93: \$50,000	TOTAL: \$100,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
NEWMAN	HQ/J A NUTH	19-Phys Sci, NEC

**NAGW 3476 University of California - Los Angeles 2421**  
OBL. WAV. IN HOT MAG. PLAS. MOD. BY A GEN. LOR. (K APPA)DIS.

Period	Obligations	
03/27/1993-03/31/1994	FY93: \$70,000	TOTAL: \$70,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
R M THORNE	HQ/E C WHIPPLE	13-Physics
	....G L WITHBROE	

**NAGW 3190 University of California - Los Angeles 2415**  
PLASMA PHYSICS OF PLANETARY MAGNETOSPHERES

Period	Obligations	
08/28/1992-12/31/1993	FY93: \$70,000	TOTAL: \$105,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
D D BARBOSA	HQ/E C WHIPPLE	13-Physics
	....J D BOHLIN	

**NAGW 3477 University of California - Los Angeles 2422**  
STRUCTURE AND DISSIPATION IN COLLISIONLESS SHOCKS

Period	Obligations	
03/29/1993-01/31/1994	FY93: \$67,000	TOTAL: \$67,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
C T RUSSELL	HQ/F C WHIPPLE	13-Physics
	....G L WITHBROE	

**NAGW 3300 University of California - Los Angeles 2416**  
INTERNATIONAL CONFERENCE ON INFRARED ASTRONOMY WITH ARRAYS THE NEXT GENERATION

Period	Obligations	
12/31/1992-12/31/1993	FY93: \$9,544	TOTAL: \$9,544
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
I S MCLEAN	HQ/L J CAROFF	11-Astronomy

**NAGW 3484 University of California - Los Angeles 2423**  
COLDSPOTS AND HOTSPOTS QUANTITATIVE INVESTIGATIONS OF VENUS TECTONICS

Period	Obligations	
03/27/1993-03/14/1994	FY93: \$52,000	TOTAL: \$52,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
D L BINDSCHADLER	HQ/J T BERGSTRALH	32-Geological Sci

**NAGW 3308 University of California - Los Angeles 2417**  
NAGW-3308/UCLA/PRISTINE IGNEOUS ROCKS AND THE GENESIS OF EARLY PLANETARY CRUSTS

Period	Obligations	
12/22/1992-12/14/1993	FY93: \$119,700	TOTAL: \$119,700
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
P H WARREN	HQ/H C BRINTON	32-Geological Sci

**NAGW 3492 University of California - Los Angeles 2424**  
AN INVESTIGATION OF THE INDUCED MAG. OF VENUS AND ITS INTERACTION WITH THE SOLAR WIND

Period	Obligations	
03/27/1992-03/14/1994	FY93: \$30,000	TOTAL: \$30,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
C T RUSSELL	HQ/J T BERGSTRALH	31-Atmos Sci

**NASA'S UNIVERSITY PROGRAM  
CALIFORNIA (Continued)**

**NAGW 3497 University of California - Los Angeles 2425**  
PLASMA WAVES IN THE MAGNETOSHEATH OF VENUS  
*Period Obligations*  
04/06/1993-03/14/1994 FY93: \$30,000 TOTAL: \$30,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R J STRANGEWAY HQ/J T BERGSTRALH 31-Atmos Sci

**NAGW 3535 University of California - Los Angeles 2426**  
DIFFERENTIATED METEORITES AND THE COMPONENTS OF C HONDRITES  
*Period Obligations*  
04/22/1993-01/31/1994 FY93: \$183,160 TOTAL: \$183,160  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J WASSON HQ/J BOYCE 32-Geological Sci

**NAGW 3546 University of California - Los Angeles 2427**  
VENUS: DYNAMICS OF ITS INTERIOR, SURFACE AND LOWER ATMOSPHERE  
*Period Obligations*  
04/22/1993-03/31/1994 FY93: \$75,000 TOTAL: \$75,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
G SCHUBERT HQ/J T BERGSTRALH 32-Geological Sci

**NAGW 3590 University of California - Los Angeles 2428**  
ASYMMETRIC AURORAL PROCESSES ON THE GIANT PLANETS  
*Period Obligations*  
05/20/1993-03/31/1994 FY93: \$50,000 TOTAL: \$50,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R THORNE HQ/H C BRINTON 19-Phys Sci, NEC

**NAGW 3661 University of California - Los Angeles 2429**  
SOME STUDIES OF THE MACRO AND MICRO STRUCTURE OF THE VENUSIAN BOW SHOCK AND THE IONOSPHERE  
*Period Obligations*  
06/16/1993-05/31/1994 FY93: \$60,000 TOTAL: \$60,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
K K KHURANA HQ/J T BERGSTRALH 31-Atmos Sci

**NAGW 3671 University of California - Los Angeles 2430**  
STRATOSPHERIC HETEROGENEOUS CHEMISTRY AND MICROPHYSICS: MODEL, DEVELOPMENT, VALIDATION AND APPLICATION  
*Period Obligations*  
06/30/1993-06/30/1994 FY93: \$110,000 TOTAL: \$110,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R TURCO HQ/J A KAYE 31-Atmos Sci

**NAGW 3725 University of California - Los Angeles 2431**  
DEVELOPMENT OF A MARS EXOBIOLGY EXPLORATION STRATEGY  
*Period Obligations*  
08/26/1993-06/30/1994 FY93: \$32,031 TOTAL: \$32,031  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J F KERRIDGE HQ/J D RUMMEL 39-Env Sci, NEC

**NAG10-52 University of California - Los Angeles 2432**  
A POROUS GROWTH SYSTEM  
*Period Obligations*  
09/30/1988-12/31/1993 FY93: \$124,532 TOTAL: \$487,970  
*Prin. Invest. NASA Tech. Officer CASE Category*  
W L BERRY KSC/W M KNOTT 55-Agriculture Sci

**NAS 1-19956 University of California - Los Angeles 2433**  
SAGE II SCIENTIFIC INVESTIGATIONS  
*Period Obligations*  
04/12/1993-04/15/1996 FY93: \$90,000 TOTAL: \$90,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R P TURCO LARC/G L MADDREA 31-Atmos Sci  
...../L R POOLE

**NAS 3-25975 University of California - Los Angeles 2434**  
RISK BASED SPACECRAFT FIRE SAFETY EXPERIMENTS/CONCEPT DEVELOPMENT PHASE B  
*Period Obligations*  
04/23/1991-06/13/1994 FY93: \$171,077 TOTAL: \$581,077  
*Prin. Invest. NASA Tech. Officer CASE Category*  
G E APOSTOLAKIS LERC/R FRIEDMAN 46-Mech Engr  
I CATTON ...../S E WASHINGTON

**NAS 5-29363 University of California - Los Angeles 2435**  
GUARENTEED TIME OBSERVATIONS OF THE HIGH RESOLUTION SPECTROGRAPH OF THE HUBBLE SPACE TELESCOPE  
*Period Obligations*  
12/12/1986-10/26/1994 FY93: \$0 TOTAL: \$64,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
M JURA GSFC/H D VITAGLIANO 11-Astronomy

**NAS 5-30373 University of California - Los Angeles 2436**  
MAGNETIC FIELD INVESTIGATION FOR POLAR SPACECRAFT  
*Period Obligations*  
04/12/1989-10/07/1994 FY93: \$241,000 TOTAL: \$2,445,500  
*Prin. Invest. NASA Tech. Officer CASE Category*  
C T RUSSELL GSFC/D CROSBY 11-Astronomy

**NAS 9-18773 University of California - Los Angeles 2437**  
RELATIONSHIP OF LONG-TERM ELECTROMYOGRAPHIC ACTIVITY TO MUSCLE ATROPHY AND PERFORMANCE  
*Period Obligations*  
10/27/1992-04/01/1997 FY93: \$245,000 TOTAL: \$245,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R EGGERTON JSC/A PLAZA 51-Biological Sci

**NCA 2-564 University of California - Los Angeles 2438**  
INTEGRATION OF PHYSIOCHEMICAL AND BIOLOGICAL SYSTEMS FOR RECYCLING OF WATER AND NUTRIENTS  
*Period Obligations*  
09/28/1990-03/31/1993 FY93: \$0 TOTAL: \$59,655  
*Prin. Invest. NASA Tech. Officer CASE Category*  
W BERRY ARC/D BUBENHEIM 54-Env Biology  
...../T WYDEVEN



**NASA'S UNIVERSITY PROGRAM  
CALIFORNIA (Continued)**

**NCA 2-597 University of California - Los Angeles 2439**  
FAR-INFRARED PHOTOMETRY, POLARIMETRY, AND SPECTROS  
COPY OF THE GALACTIC CENTER ARC

Period	Obligations	
03/11/1991-07/31/1992	FY93: \$0	TOTAL: \$21,000
Prin. Invest.	NASA Tech. Officer	CASE Category
M MORRIS	ARC/E ERICKSON	11-Astronomy

**NCC 2-826 University of California - Los Angeles 2446**  
ADVANCING THE SIENCE EXPERIENCES OF YOUNG CHILDREN (2-5  
YEARS)

Period	Obligations	
09/16/1993-01/14/1994	FY93: \$90,000	TOTAL: \$90,000
Prin. Invest.	NASA Tech. Officer	CASE Category
R GELMAN	ARC/L C SHELTER	69-Psych, NEC
L TRAVIS	....K W ILIFF	
L WATROUS		

**NCA 2-612 University of California - Los Angeles 2440**  
IONIZING RADIATION FROM CURRENT MODELS OF 0 AND B  
STARS

Period	Obligations	
05/09/1991-04/30/1992	FY93: \$0	TOTAL: \$40,000
Prin. Invest.	NASA Tech. Officer	CASE Category
B ZUCKERMAN	ARC/E ERICKSON	11-Astronomy

**NGT 00-030-079 University of California - Los Angeles 2447**  
NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM

Period	Obligations	
09/17/1991-08/31/1994	FY93: \$22,000	TOTAL: \$66,000
Prin. Invest.	NASA Tech. Officer	CASE Category
A TABAZADEH	HQ/D M BUTLER	31-Atmos Sci
R TURCO	....G S WILSON	

**NCA 2-689 University of California - Los Angeles 2441**  
DYNAMICAL MODELLING OF A JOVIAN CUMULUS

Period	Obligations	
03/02/1992-03/31/1994	FY93: \$0	TOTAL: \$17,996
Prin. Invest.	NASA Tech. Officer	CASE Category
G SCHUBERT	ARC/C R STOKER	13-Physics

**NGT 00-030-148 University of California - Los Angeles 2448**  
NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM

Period	Obligations	
10/27/1992-08/31/1994	FY93: \$44,000	TOTAL: \$44,000
Prin. Invest.	NASA Tech. Officer	CASE Category
S M ANDERSON	HQ/G ASRAR	99-Multi-Discip
	....D M BUTLER	

**NCA 2-806 University of California - Los Angeles 2442**  
THE AFFECT OF RECYCLED NUTRIENTS ON THE SHORT TERM  
CONTROL OF NUTRIENT SOLUTIONS

Period	Obligations	
04/02/1993-03/31/1995	FY93: \$15,360	TOTAL: \$15,360
Prin. Invest.	NASA Tech. Officer	CASE Category
W BERRY	ARC/D BUBENHEIM	54-Env Biology

**NGT 00-050-444 University of California - Los Angeles 2449**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM

Period	Obligations	
08/11/1989-12/31/1993	FY93: \$10,000	TOTAL: \$94,000
Prin. Invest.	NASA Tech. Officer	CASE Category
P P FRIEDMANN	HQ/F C OWENS	41-Aero Engr

**NCC 2-374 University of California - Los Angeles 2443**  
LABORATORY FOR FLIGHT-SYSTEMS RESEARCH

Period	Obligations	
10/01/1987-11/30/1993	FY93: \$989,600	TOTAL: \$4,761,259
Prin. Invest.	NASA Tech. Officer	CASE Category
A V BALAKRISHNAN	ARC/K W ILIFF	49-Engr, NEC

**NGT 00-050-562 University of California - Los Angeles 2450**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM

Period	Obligations	
07/25/1990-06/30/1992	FY93: \$0	TOTAL: \$44,000
Prin. Invest.	NASA Tech. Officer	CASE Category
V R EDGERTON	HQ/F C OWENS	56-Medical Sciences

**NCC 2-535 University of California - Los Angeles 2444**  
MUSCLE FEASIBILITY FOR RHESUS

Period	Obligations	
06/01/1988-10/31/1993	FY93: \$199,991	TOTAL: \$942,449
Prin. Invest.	NASA Tech. Officer	CASE Category
V R EDGERTON	ARC/J P CONNOLLY	51-Biological Sci
R R ROY	....R W BALLARD	
J H HODGSON		

**NGT 00-050-618 University of California - Los Angeles 2451**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM

Period	Obligations	
07/26/1990-06/30/1993	FY93: \$0	TOTAL: \$65,430
Prin. Invest.	NASA Tech. Officer	CASE Category
M G KUELSON	HQ/F C OWENS	13-Physics

**NCC 2-804 University of California - Los Angeles 2445**  
PSYCHOPHYSIOLOGY OF HUMANS IN SPACE

Period	Obligations	
06/03/1993-03/14/1994	FY93: \$291,619	TOTAL: \$291,619
Prin. Invest.	NASA Tech. Officer	CASE Category
P S COWINGS	ARC/P X CALLAHAN	59-Life Sci, NEC

**NGT 00-050-807 University of California - Los Angeles 2452**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM

Period	Obligations	
09/20/1991-09/30/1994	FY93: \$22,000	TOTAL: \$65,780
Prin. Invest.	NASA Tech. Officer	CASE Category
I S MCLEAN	HQ/J K ALEXANDER	11-Astronomy

**NGT 00-051-000 University of California - Los Angeles 2453**  
GRADUATE STUDENT RESEARCHERS PROGRAM

Period	Obligations	
10/30/1992-09/30/1994	FY93: \$44,000	TOTAL: \$44,000
Prin. Invest.	NASA Tech. Officer	CASE Category
D A PAIGE	HQ/J K ALEXANDER	13-Physics

# NASA'S UNIVERSITY PROGRAM CALIFORNIA (Continued)

**NGT 00-051-148 University of California - Los Angeles 2454**  
GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period* *Obligations*  
07/28/1993-08/31/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
W GEKELMAN HQ/D HOLLAND 13-Physics

**NGT 00-051-173 University of California - Los Angeles 2455**  
GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period* *Obligations*  
08/19/1993-08/31/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
P P FRIEDMAN ARC/M MOORE 41-Aero Engr

**NGT 00-051-175 University of California - Los Angeles 2456**  
GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period* *Obligations*  
08/18/1993-06/30/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
V R EDGERTON ARC/M MOORE 56-Medical Sciences

**NSG-1490 University of California - Los Angeles 2457**  
FUNDAMENTAL STUDIES OF METHODS FOR STRUCTURAL SYNTHESIS  
*Period* *Obligations*  
01/23/1978-09/30/1992 FY93: \$1 TOTAL: \$1,520,900  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
L A SCHMIT JR LARC/J SOBIESKI 49-Engr, NEC  
C FLEURY

**NSG-2290 University of California - Los Angeles 2458**  
GRANT SUPPORTED RESEARCH PROGRAM IN JET/SURFACE INTERACTIONS  
*Period* *Obligations*  
12/21/1977-09/30/1992 FY93: \$0 TOTAL: \$400,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
W C MEECHAM ARC/P SODERMAN 41-Aero Engr  
.../W C HORNE

**NSG-5272 University of California - Los Angeles 2459**  
PROBLEMS OF MASS LOSS AND MASS TRANSFER IN CLOSE BINARY SYSTEMS  
*Period* *Obligations*  
05/01/1978-08/31/1993 FY93: \$10,230 TOTAL: \$315,996  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
M J PLAVEC GSFC/D WEST 11-Astronomy  
C D KEYES

**NAG 5-1493 University of California - Riverside 2460**  
STUDY OF WEAK DISCRETE ASTROPHYSICAL GAMMA RAY  
*Period* *Obligations*  
01/07/1991-10/31/1992 FY93: \$0 TOTAL: \$53,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
A D ZYCH GSFC/J P NORRIS 11-Astronomy  
....D A KNIFFEN

**NAG 5-2027 University of California - Riverside 2461**  
COMTEL STUDY OF NEUTRONS AND GAMMA RAYS FROM SOLAR FLARES  
*Period* *Obligations*  
07/17/1992-11/30/1993 FY93: \$66,627 TOTAL: \$111,044  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
T J O'NEILL GSFC/J P NORRIS 11-Astronomy  
....N WHITE

**NAG 5-2044 University of California - Riverside 2462**  
SPECTRAL AND TIME VARIABILITY STUDIES OF ACCRETING MEDIUM ENERGY GAMMA RAY SOURCES WITH TE COMTEL.  
*Period* *Obligations*  
07/28/1992-10/31/1993 FY93: \$30,000 TOTAL: \$50,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
A D ZYCH GSFC/J P NORRIS 11-Astronomy  
....N WHITE

**NAG 8-804 University of California - Riverside 2463**  
STUDY FOR PCG  
*Period* *Obligations*  
12/01/1989-04/30/1992 FY93: \$0 TOTAL: \$245,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
A MCPHERSON MSFC/R SNYDER 51-Biological Sci

**NAG 8-956 University of California - Riverside 2464**  
PROTEIN CRYSTALLIZATION EXPERIMENT  
*Period* *Obligations*  
05/13/1993-09/30/1993 FY93: \$91,759 TOTAL: \$91,759  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
A MCPHERSON MSFC/B J HERREN 12-Chemistry

**NAG 8-957 University of California - Riverside 2465**  
ADVANCED LIQUID-LIQUID DIFFUSION INSTRUMENT FOR PROTEIN CRYSTAL GROWTH  
*Period* *Obligations*  
05/04/1993-09/30/1993 FY93: \$126,540 TOTAL: \$126,540  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
A MCPHERSON MSFC/B J HERRON 12-Chemistry

**NAGW 1996 University of California - Riverside 2466**  
UCR GAMMA RAY ASTRONOMY PROGRAM  
*Period* *Obligations*  
02/27/1990-11/30/1993 FY93: \$270,000 TOTAL: \$795,849  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
A ZYCH HQ/L J KALUZIENSKI 11-Astronomy  
R S WHITE

**NAS 8-39763 University of California - Riverside 2467**  
CRYSTAL GROWTH FLIGHT APPARATUS  
*Period* *Obligations*  
10/30/1992-12/31/1993 FY93: \$978,150 TOTAL: \$978,150  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
A MCPHERSON MSFC/B J HERREN 12-Chemistry

**NAS 8-39764 University of California - Riverside 2468**  
DIFFUSION INSTRUMENT FOR PROTEIN CRYSTAL GROWTH  
*Period* *Obligations*  
11/02/1992-05/01/1993 FY93: \$135,566 TOTAL: \$135,566  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
A MCPHERSON MSFC/B J HERREN 12-Chemistry

**NAS 8-39765 University of California - Riverside 2469**  
CRYSTALLIZATION EXPERIMENTS  
*Period* *Obligations*  
11/02/1992-05/01/1993 FY93: \$117,561 TOTAL: \$117,561  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
A MCPHERSON MSFC/B J HERREN 12-Chemistry

# **NASA'S UNIVERSITY PROGRAM** **CALIFORNIA (Continued)**

**NGT 00-070-261 University of California - Riverside 2470**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
 MINORITY FOCUS PROGRAM

Period	Obligations	
05/15/1992-06/30/1994	FY93: \$18,000	TOTAL: \$40,000
Prin. Invest.	NASA Tech. Officer	CASE Category
O A CHADWICK	JPL/H ASHKENAS	55-Agriculture Sci

**NAG 1-1051 University of California - San Diego 2471**  
 MONOLITH CATALYSTS FOR CLOSED-CYCLE CARBON DIOXIDE  
 LASERS D

Period	Obligations	
08/16/1989-03/31/1994	FY93: \$5,500	TOTAL: \$120,300
Prin. Invest.	NASA Tech. Officer	CASE Category
R K HERZ	LARC/D R SCHRYER	43-Chem Engr
	....L J ROSE	

**NAG 1-1193 University of California - San Diego 2472**  
 SUPERSONIC MIXING LAYERS W/ AND W/O COMBUSTION

Period	Obligations	
10/22/1990-10/21/1993	FY93: \$30,511	TOTAL: \$80,511
Prin. Invest.	NASA Tech. Officer	CASE Category
P A LIBBY	LARC/T B GATSKI	41-Aero Engr
F A WILLIAMS	....J P DRUMMOND	

**NAG 1-1259 University of California - San Diego 2473**  
 A STUDY OF CLOUD RADIATIVE FORCING AND FEEDBACK - FDP

Period	Obligations	
04/19/1991-04/07/1994	FY93: \$164,785	TOTAL: \$409,785
Prin. Invest.	NASA Tech. Officer	CASE Category
V RAMANATHAN	LARC/B A WIELICKI	32-Geological Sci
	....J W YOUNGBLOOD	

**NAG 1-1445 University of California - San Diego 2474**  
 EXTENSION-BEND-TWIST-SHEAR COUPLING BEHAVIOR OF  
 PRETWISTED ADVANCED COMPOSITE BEAMS

Period	Obligations	
08/03/1992-07/06/1994	FY93: \$38,563	TOTAL: \$62,500
Prin. Invest.	NASA Tech. Officer	CASE Category
J B KOSMATKA	LARC/R C LAKE	41-Aero Engr

**NAG 1-1516 University of California - San Diego 2475**  
 THE INTERACTION OF A SHOCK WITH SHEARED TURBULENCE NLPN  
 93-415

Period	Obligations	
06/29/1993-06/30/1994	FY93: \$37,260	TOTAL: \$37,260
Prin. Invest.	NASA Tech. Officer	CASE Category
S SARKAR	LARC/J DRUMMOND	41-Aero Engr

**NAG 1-1535 University of California - San Diego 2476**  
 A HYBRID SIMULATION OF THE ACOUSTIC RADIATION FROM GRID  
 TURBULENCE

Period	Obligations	
09/20/1993-09/30/1994	FY93: \$24,246	TOTAL: \$24,246
Prin. Invest.	NASA Tech. Officer	CASE Category
S SARKAR	LARC/W E ZORUMSKI	41-Aero Engr

**NAG 2-153 University of California - San Diego 2477**  
 PIONEER 10 AND 11 DATA ANALYSIS

Period	Obligations	
01/01/1982-09/30/1994	FY93: \$220,000	TOTAL: \$1,664,842
Prin. Invest.	NASA Tech. Officer	CASE Category
W FILLIUS	ARC/L E LASHER	19-Phys Sci, NEC
	....J R PHILLIPS	

**NAG 2-601 University of California - San Diego 2478**  
 PULMONARY GAS EXCHANGE, VENTILATION AND BLOOD FLO W  
 IN MICROGRAVITY

Period	Obligations	
09/08/1989-10/31/1993	FY93: \$55,000	TOTAL: \$309,950
Prin. Invest.	NASA Tech. Officer	CASE Category
J B WEST	ARC/C M WINGET	51-Biological Sci
H J GUY		
A R ELLIOTT		

**NAG 2-653 University of California - San Diego 2479**  
 ADAPTATION OF SKELETAL MUSCLE TO SPACEFLIGHT: CO SMOS  
 RHESUS PROJECT

Period	Obligations	
07/02/1990-10/31/1993	FY93: \$86,861	TOTAL: \$233,374
Prin. Invest.	NASA Tech. Officer	CASE Category
S FOWLER	ARC/J P CONNOLLY	51-Biological Sci
	....R W BALLARD	

**NAG 2-659 University of California - San Diego 2480**  
 VOLUME HOMEOSTASIS AND RENAL FUNCTION IN RATS EXPOS  
 ED TO SIMULATED AND ACTUAL MICROGRAVITY

Period	Obligations	
07/31/1990-12/31/1992	FY93: \$0	TOTAL: \$144,000
Prin. Invest.	NASA Tech. Officer	CASE Category
B J TUCKER	ARC/A R HARGENS	56-Medical Sciences

**NAG 2-714 University of California - San Diego 2481**  
 ADAPTIVE RESPONSE OF SLOW AND FAST SKELETAL MUSCLE IN  
 THE MONKEY TO SPACEFLIGHT: RHESUS PROJECT

Period	Obligations	
06/27/1991-03/31/1994	FY93: \$91,057	TOTAL: \$186,055
Prin. Invest.	NASA Tech. Officer	CASE Category
S BODINE-FOWLER	ARC/C M WINGET	51-Biological Sci

**NAG 2-873 University of California - San Diego 2482**  
 A DISTRIBUTED COGNITION FIELD ANALYSIS OF THE USE OF TWO  
 ATC AUTOMATION TOOLS

Period	Obligations	
09/20/1993-09/30/1994	FY93: \$75,695	TOTAL: \$75,695
Prin. Invest.	NASA Tech. Officer	CASE Category
E L HUTCHINS	ARC/L TOBIAS	62-Social Aspects
	....T J DAVIS	

**NAG 3-925 University of California - San Diego 2483**  
 FLAME PROPAGATION AND EXTENSION FOR CLOUDS OF FUEL  
 PARTICULATES

Period	Obligations	
09/15/1988-09/30/1991	FY93: \$0	TOTAL: \$269,000
Prin. Invest.	NASA Tech. Officer	CASE Category
A L BERLAD	LERC/H D ROSS	46-Mech Engr
K SESHADRI		

**NASA'S UNIVERSITY PROGRAM  
CALIFORNIA (Continued)**

**NAG 3-1081 University of California - San Diego 2484**  
SCIENTIFIC SUPPORT FOR A PROPOSED SPACE SHUTTLE DR OPLET  
BURNING EXPERIMENT

<i>Period</i>	<i>Obligations</i>	
11/01/1989-01/14/1994	FY93: \$80,000	TOTAL: \$282,510
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
F A WILLIAMS	LERC/H D ROSS	49-Engr, NEC

**NAG 3-1243 University of California - San Diego 2485**  
VAPOR-PRESSURE PUMPED HEAT-TRANSFER LOOP

<i>Period</i>	<i>Obligations</i>	
03/08/1991-10/24/1993	FY93: \$0	TOTAL: \$82,861
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
K O LUND	LERC/K W BAKER	46-Mech Engr
	....M O DUSTIN	

**NAG 3-1248 University of California - San Diego 2486**  
HIGH-PRESSURE COMBUSTION OF BINARY-FUEL DROPLETS

<i>Period</i>	<i>Obligations</i>	
03/12/1991-12/14/1993	FY93: \$35,000	TOTAL: \$95,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
F A WILLIAMS	LERC/H D ROSS	46-Mech Engr

**NAG 5-236 University of California - San Diego 2487**  
EFFECTS OF GLOBAL TROPICAL WEATHER SATELLITE DATA ON  
PREDICABILITY OF PLANETARY WAVES

<i>Period</i>	<i>Obligations</i>	
05/15/1982-09/30/1993	FY93: \$0	TOTAL: \$775,713
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
R C SOMERVILLE	GSFC/M SUAREZ	31-Atmos Sci
J ROADS		

**NAG 5-530 University of California - San Diego 2488**  
RESEARCH RELATIVE TO GAMMA-RAY SPECTROMETER X-RAY  
SPECTROMETER DEVELOPMENT

<i>Period</i>	<i>Obligations</i>	
04/01/1985-09/30/1992	FY93: \$0	TOTAL: \$240,698
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
J ARNOLD	GSFC/J I TROMBKA	32-Geological Sci
	....R L SCHMADEBECK	

**NAG 5-900 University of California - San Diego 2489**  
VARIATION OF THE NET SURFACE RADIATION FLUX FROM  
SATELLITE RADIANCES

<i>Period</i>	<i>Obligations</i>	
05/01/1987-01/31/1992	FY93: \$0	TOTAL: \$379,943
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
C H GAUTIER	GSFC/B CHOUDHURY	39-Env Sci, NEC
R FROUIN	....F HALL	

**NAG 5-905 University of California - San Diego 2490**  
STATISTICAL DESCRIPTION OF TECTONIC MOTIONS ANALYSIS OF  
CRUSTAL DYNAMICS OBSERVATIONS

<i>Period</i>	<i>Obligations</i>	
04/15/1987-12/31/1991	FY93: \$0	TOTAL: \$298,352
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
D C AGNEW	GSFC/H V FREY	32-Geological Sci

**NAG 5-1023 University of California - San Diego 2491**  
PLATE MOTIONS AND DEFORMATIONS FROM GEOLOGIC AND  
GEODETIC DATA

<i>Period</i>	<i>Obligations</i>	
11/01/1987-12/31/1991	FY93: \$0	TOTAL: \$310,172
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
J B MINSTER	GSFC/H FREY	32-Geological Sci
T H JORDAN		

**NAG 5-1266 University of California - San Diego 2492**  
GEODYNAMICS APPLICATION OF GEOSTAT/ERM ALTIMETRY

<i>Period</i>	<i>Obligations</i>	
08/15/1989-06/30/1992	FY93: \$0	TOTAL: \$192,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
D T SANDWELL	GSFC/J E WELKER	32-Geological Sci

**NAG 5-1372 University of California - San Diego 2493**  
ASTROPHYSICS OF FAST X-RAY PULSERS

<i>Period</i>	<i>Obligations</i>	
04/23/1990-05/31/1993	FY93: \$0	TOTAL: \$58,200
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
D E GRUBER	GSFC/D WEST	11-Astronomy

**NAG 5-1492 University of California - San Diego 2494**  
PHYSICS OF BOUNDARIES AND THEIR INTERACTION IN SPACE  
PLASMAS

<i>Period</i>	<i>Obligations</i>	
01/08/1991-12/31/1993	FY93: \$281,000	TOTAL: \$792,570
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
N OMIDI	GSFC/T J BIRMINGHAM	13-Physics
K B QUEST		

**NAG 5-1499 University of California - San Diego 2495**  
X-RAY INVESTIGATION OF INTERGALACTIC VOIDS

<i>Period</i>	<i>Obligations</i>	
03/27/1991-12/31/1992	FY93: \$0	TOTAL: \$43,793
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
W H TUCKER	GSFC/D WEST	11-Astronomy

**NAG 5-1511 University of California - San Diego 2496**  
BATSE OPTIMIZATION AND SOLAR FLARE OBSERVATIONS

<i>Period</i>	<i>Obligations</i>	
03/27/1991-04/30/1992	FY93: \$0	TOTAL: \$75,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
L E PETERSON	GSFC/J P NORRIS	11-Astronomy
	....D A KNIFFEN	

**NAG 5-1597 University of California - San Diego 2497**  
THEORETICAL CALCULATIONS OF SOLAR FLARE NEUTRONS AND  
GAMMA RAYS TO SUPPORT GRO OBSERVATIONS

<i>Period</i>	<i>Obligations</i>	
05/09/1991-08/14/1994	FY93: \$74,400	TOTAL: \$170,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
R E LINGENFELTER	GSFC/J NORRIS	11-Astronomy
	....D A KNIFFEN	

**NAG 5-1630 University of California - San Diego 2498**  
FAINT OBJECT SPECTROGRAPHY SCIENCE VERIFICATION AND  
GTO

<i>Period</i>	<i>Obligations</i>	
06/24/1991-10/31/1993	FY93: \$3,030,916	TOTAL: \$7,102,823
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
R HARMS	GSFC/S SOBIESKI	11-Astronomy

**NASA'S UNIVERSITY PROGRAM  
CALIFORNIA (Continued)**

**NAG 5-1692 University of California - San Diego 2499**  
X-RAY AND INFRARED INVESTIGATION OF POSSIBLE FAILED CLUSTERS OF GALAXIES

Period	Obligations	
08/15/1991-02/14/1993	FY93: \$0	TOTAL: \$39,733
Prin. Invest.	NASA Tech. Officer	CASE Category
W H TUCKER	GSFC/D WEST	11-Astronomy

**NAG 5-1995 University of California - San Diego 2507**  
THE MEAN HIGH ENERGY X SPECTRUM OF ACTIVE GALACTIC NUCLEI

Period	Obligations	
06/12/1992-06/14/1994	FY93: \$0	TOTAL: \$40,400
Prin. Invest.	NASA Tech. Officer	CASE Category
Y REPHAELI	GSFC/D WEST	11-Astronomy

**NAG 5-1858 University of California - San Diego 2500**  
GUARANTEED TIME OBSERVATIONS OF THE HIGH RESOLUTION SPECTROGRAPH OF THE HUBBLE SPACE TELESCOPE

Period	Obligations	
01/03/1992-11/14/1993	FY93: \$151,734	TOTAL: \$287,640
Prin. Invest.	NASA Tech. Officer	CASE Category
E BEAVER	GSFC/A SMITH	11-Astronomy

**NAG 5-2059 University of California - San Diego 2508**  
THE SPECTRAL ENERGY DISTRIBUTION OF HIGH-REDSHIFT QUASARS OBSERVED WITH ROSAT AND THE HST

Period	Obligations	
08/05/1992-08/14/1993	FY93: \$25,000	TOTAL: \$40,000
Prin. Invest.	NASA Tech. Officer	CASE Category
R D COHEN	GSFC/R PETRE	11-Astronomy

**NAG 5-1868 University of California - San Diego 2501**  
DETECTION OF TAU NEUTRINO DECAY PHOTONS

Period	Obligations	
02/01/1992-01/31/1993	FY93: \$0	TOTAL: \$3,591
Prin. Invest.	NASA Tech. Officer	CASE Category
Y REPHAELI	GSFC/D WEST	11-Astronomy

**NAG 5-2127 University of California - San Diego 2509**  
THE X-RAY TO IR CONTINUUM OF PG 1522+101

Period	Obligations	
10/28/1992-10/31/1993	FY93: \$5,000	TOTAL: \$5,000
Prin. Invest.	NASA Tech. Officer	CASE Category
R D COHEN	GSFC/D WEST	11-Astronomy

**NAG 5-1910 University of California - San Diego 2502**  
SPACE GEODETIC DETECTORS OF TECTONIC SIGNALS

Period	Obligations	
02/21/1992-02/28/1994	FY93: \$58,968	TOTAL: \$114,968
Prin. Invest.	NASA Tech. Officer	CASE Category
J B MINSTER	GSFC/B G BILLS	32-Geological Sci

**NAG 5-2197 University of California - San Diego 2510**  
AN INVESTIGATION OF INTERCLUSTER GAS IN SUPERCLUSTERS

Period	Obligations	
03/01/1993-02/28/1994	FY93: \$8,700	TOTAL: \$8,700
Prin. Invest.	NASA Tech. Officer	CASE Category
Y REPHAELI	GSFC/R PETRE	11-Astronomy

**NAG 5-1914 University of California - San Diego 2503**  
PROGRAM FOR CONTINUED DEVELOPMENT AND USE OF OCEAN ACOUSTIC/GPS GEODETIC TECHNIQUES

Period	Obligations	
02/26/1992-02/28/1994	FY93: \$200,000	TOTAL: \$370,000
Prin. Invest.	NASA Tech. Officer	CASE Category
F N SPIESS	GSFC/B G BILLS	32-Geological Sci

**NAG 5-2236 University of California - San Diego 2511**  
OSSE MEASUREMENTS OF THE COMA CLUSTER

Period	Obligations	
04/08/1993-04/14/1994	FY93: \$39,772	TOTAL: \$39,772
Prin. Invest.	NASA Tech. Officer	CASE Category
Y REPHAELI	GSFC/J P NORRIS	11-Astronomy
	...../N WHITE	

**NAG 5-1917 University of California - San Diego 2504**  
PERMANENT GPS GEODETIC ARRAY IN SOUTHERN CALIFORNIA

Period	Obligations	
04/20/1992-04/30/1994	FY93: \$120,000	TOTAL: \$240,000
Prin. Invest.	NASA Tech. Officer	CASE Category
Y BOCK	GSFC/B G BILLS	32-Geological Sci

**NAG 5-2333 University of California - San Diego 2512**  
ORBITAL GAMMA RAY INSTRUMENT FOR PLANETARY MISSIONS

Period	Obligations	
07/27/1993-07/31/1994	FY93: \$10,000	TOTAL: \$10,000
Prin. Invest.	NASA Tech. Officer	CASE Category
J R ARNOLD	GSFC/J I TROMBKA	11-Astronomy

**NAG 5-1932 University of California - San Diego 2505**  
A FLINN STATION AT PINON FLAT OBSERVATORY

Period	Obligations	
03/04/1992-03/14/1994	FY93: \$40,000	TOTAL: \$80,000
Prin. Invest.	NASA Tech. Officer	CASE Category
D C AGNEW	GSFC/B G BILLS	32-Geological Sci

**NAG 9-33 University of California - San Diego 2513**  
HISTORICAL STUDIES OF EXTRATERRESTRIAL MATERIAL

Period	Obligations	
02/01/1983-01/01/1994	FY93: \$0	TOTAL: \$1,447,790
Prin. Invest.	NASA Tech. Officer	CASE Category
J R ARNOLD	JSC/I D BROWNE	12-Chemistry

**NAG 5-1977 University of California - San Diego 2506**  
SEARCH FOR THE X-RAY COUNTERPART OF THE 5 MARCH 1979 GAMMA RAY BURST

Period	Obligations	
05/04/1992-05/14/1994	FY93: \$0	TOTAL: \$18,000
Prin. Invest.	NASA Tech. Officer	CASE Category
R E ROTHSCHILD	GSFC/R PETRE	11-Astronomy

**NAG 9-41 University of California - San Diego 2514**  
SOLAR SYSTEM HISTORY

Period	Obligations	
02/01/1983-02/01/1994	FY93: \$0	TOTAL: \$1,228,030
Prin. Invest.	NASA Tech. Officer	CASE Category
K MARTI	JSC/I D BROWNE	19-Phys Sci, NEC
G W LUGMAIR		

**NASA'S UNIVERSITY PROGRAM  
CALIFORNIA (Continued)**

**NAG 9-49 University of California - San Diego 2515**  
INVESTIGATE EXTRATERRESTRAL MATERIALS  
*Period* *Obligations*  
02/01/1983-03/01/1994 FY93: \$0 TOTAL: \$2,590,859  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
G W LUGMAIR JSC/I D BROWNE 32-Geological Sci

**NAG 9-83 University of California - San Diego 2516**  
OXYGEN ISOTOPIC ANOMALIES METEORITES  
*Period* *Obligations*  
03/01/1984-03/01/1993 FY93: \$0 TOTAL: \$413,110  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
M H THIEMENS JSC/I D BROWNE 32-Geological Sci

**NAG 9-271 University of California - San Diego 2517**  
PULMONARY FUNCTION DURING MICROGRAVITY  
*Period* *Obligations*  
03/11/1988-10/01/1994 FY93: \$0 TOTAL: \$281,132  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J B WEST JSC/J B CHARLES 56-Medical Sciences

**NAG 9-470 University of California - San Diego 2518**  
ESTABLISH NEW GRANT  
*Period* *Obligations*  
08/28/1990-09/01/1993 FY93: \$0 TOTAL: \$30,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J M RICLES JSC/S H GOLDSTEIN 21-Mathematics

**NAGW 20 University of California - San Diego 2519**  
MECHANISM OF SYNTHESIS OF AMINO HYDROLY AND DICARBOXYLIC ACIDS  
*Period* *Obligations*  
12/01/1979-11/30/1992 FY93: \$0 TOTAL: \$712,984  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
S R MILLER HQ/J D RUMMEL 32-Geological Sci  
..../M AVERNER

**NAGW 449 University of California - San Diego 2520**  
HIGH RESOLUTION GAMMA-RAY SPECTROSCOPY OF COSMIC SOURCES  
*Period* *Obligations*  
03/15/1983-04/31/1993 FY93: \$654,760 TOTAL: \$9,432,855  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J L MATTESON HQ/L J KALUZIENSKI 11-Astronomy  
..../A N BUNNER

**NAGW 683 University of California - San Diego 2521**  
UNIVERSITY RESEARCH  
*Period* *Obligations*  
12/01/1984-04/30/1994 FY93: \$50,000 TOTAL: \$1,202,948  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J J SIMPSON HQ/M R LEWIS 33-Oceanography  
..../W S WILSON

**NAGW 897 University of California - San Diego 2522**  
NO COST EXTENSION UNDER THE ELIMINATION OF UNNECESSARY ADMIN  
*Period* *Obligations*  
02/11/1991-09/30/1994 FY93: \$0 TOTAL: \$195,187  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J B WEST HQ/R J WHITE 51-Biological Sci

**NAGW 1031 University of California - San Diego 2523**  
RUST MINERALS AS TEMPLATES FOR ORGANIC MOLECULES  
*Period* *Obligations*  
01/01/1987-12/31/1993 FY93: \$83,000 TOTAL: \$604,771  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
G ARRHENIUS HQ/J D RUMMEL 51-Biological Sci

**NAGW 1150 University of California - San Diego 2524**  
USE OF GENERALIZED ADIABETIC THEORY TO STUDY MAGNETOSPHERIC  
*Period* *Obligations*  
09/09/1987-09/30/1994 FY93: \$33,000 TOTAL: \$426,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
E C WHIPPLE HQ/M M MELLOTT 13-Physics  
..../T W PERRY

**NAGW 1502 University of California - San Diego 2525**  
SMALL BODIES IN THE SOLAR SYSTEM COMETS  
*Period* *Obligations*  
11/14/1988-11/30/1993 FY93: \$84,000 TOTAL: \$382,500  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
D A MENDIS HQ/J T BERGSTRALH 11-Astronomy

**NAGW 1737 University of California - San Diego 2526**  
PROPERTIES OF QUASI-STEELAR OBJECTS  
*Period* *Obligations*  
04/07/1989-11/30/1993 FY93: \$30,000 TOTAL: \$354,919  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
G R BURBIDGE HQ/G CLAYTON 99-Multi-Discip

**NAGW 1806 University of California - San Diego 2527**  
A KINETIC STUDY OF THE SOLAR WIND COMA INTERACTION  
*Period* *Obligations*  
07/11/1989-10/31/1993 FY93: \$62,356 TOTAL: \$247,139  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
N OMIDI HQ/M M MELLOTT 13-Physics  
..../T W PERRY

**NAGW 1837 University of California - San Diego 2528**  
RESEARCH IN HIGH ENERGY ASTROPHYSICS  
*Period* *Obligations*  
08/24/1989-06/30/1992 FY93: \$0 TOTAL: \$172,090  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
L E PETERSON HQ/L J KALUZIENSKI 31-Atmos Sci

**NAGW 1952 University of California - San Diego 2529**  
RESEARCH ON CLIMATE AND OCEAN DYNAMICS USING ERS-1 OBSERVATIONS  
*Period* *Obligations*  
02/07/1990-05/31/1994 FY93: \$35,499 TOTAL: \$170,132  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
T P BARNETT HQ/G S LAGERLOEF 31-Atmos Sci  
..../W S WILSON

**NAGW 1970 University of California - San Diego 2530**  
THEORETICAL STUDIES IN GAMMA-RAY ASTROPHYSICS  
*Period* *Obligations*  
01/05/1990-10/31/1993 FY93: \$90,000 TOTAL: \$359,661  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R E LINGENFELTER HQ/L J KALUZIENSKI 11-Astronomy  
..../A N BUNNER

**NASA'S UNIVERSITY PROGRAM  
CALIFORNIA (Continued)**

**NAGW 1978 University of California - San Diego 2531**  
REMOTE SENSING OF HEAT AND FRESH WATER EXCHANGES IN THE TROPICAL PACIFIC

Period	Obligations
05/05/1990-03/31/1992	FY93: \$0 TOTAL: \$84,252
Prin. Invest.	NASA Tech. Officer CASE Category
C GAUTIER	HQ/G S LAGERLOEF 33-Oceanography
	....W S WILSON

**NAGW 2252 University of California - San Diego 2538**  
NAGW-2252/UNIV OF CA @ SAN DIEGO/DUST AND PLASMA EFFECTS IN THE FORMATION OF SOLAR SYSTEMS

Period	Obligations
03/11/1991-10/31/1992	FY93: \$40,000 TOTAL: \$120,000
Prin. Invest.	NASA Tech. Officer CASE Category
A MENDIS	HQ/J A NUTH 19-Phys Sci, NEC

**NAGW 2002 University of California - San Diego 2532**  
HELIOS PHOTOMETER CHARACTERIZATION OF INTERPLANETARY STRUCTURES

Period	Obligations
05/04/1990-02/28/1994	FY93: \$50,000 TOTAL: \$220,000
Prin. Invest.	NASA Tech. Officer CASE Category
B V JACKSON	HQ/W V JONES 13-Physics
	....J C LING

**NAGW 2542 University of California - San Diego 2539**  
CARBON AND HYDROGEN ISOTOPE COMPOSITION AND <sup>14</sup>C CONCENTRATION IN METHANE FROM SOURCES

Period	Obligations
10/28/1991-06/30/1994	FY93: \$151,500 TOTAL: \$303,000
Prin. Invest.	NASA Tech. Officer CASE Category
M WAHLEN	HQ/A C JANETOS 31-Atmos Sci
	....D E WICKLAND

**NAGW 2034 University of California - San Diego 2533**  
GLOBAL ATMOSPHERIC GASES EXPERIMENT (GAGE)

Period	Obligations
07/16/1990-01/31/1994	FY93: \$516,217 TOTAL: \$1,690,843
Prin. Invest.	NASA Tech. Officer CASE Category
R F WEISS	HQ/M J KURYLO 31-Atmos Sci
	....M J PRATHER

**NAGW 2577 University of California - San Diego 2540**  
SURFACE CHEMICAL COMPOSITION DETERMINATION FROM THE MARS '94 GAMMA RAY PROJECT

Period	Obligations
08/12/1991-06/30/1993	FY93: \$5,000 TOTAL: \$61,260
Prin. Invest.	NASA Tech. Officer CASE Category
J R ARNOLD	HQ/W L QUAIDE 19-Phys Sci, NEC

**NAGW 2119 University of California - San Diego 2534**  
NAGW-2119/UNIV OF CALIF @ SAN DIEGO/QSO ABSORPTION AND GALAXY EVOLUTION FROM REDSHIFT ZERO TO FOUR

Period	Obligations
05/30/1990-12/31/1993	FY93: \$175,000 TOTAL: \$708,822
Prin. Invest.	NASA Tech. Officer CASE Category
A M WOLFE	HQ/G S KUTTER 11-Astronomy
	....G R RIEGLER

**NAGW 2591 University of California - San Diego 2541**  
NAGW-2591/UNIV CA @ LA JOLLA/STUDY OF SOLAR LUMINOSITY VARIATIONS

Period	Obligations
08/19/1991-09/30/1992	FY93: \$0 TOTAL: \$34,920
Prin. Invest.	NASA Tech. Officer CASE Category
H HUDSON	HQ/W J WAGNER 13-Physics
	....K LANG

**NAGW 2200 University of California - San Diego 2535**  
NAGW-2200/UNIV OF CALIF/AN INVESTIGATION BY SATELLITE ALTIMETRY INTO THE TEMPORAL AND SPATIAL

Period	Obligations
07/24/1990-09/30/1991	FY93: \$0 TOTAL: \$138,538
Prin. Invest.	NASA Tech. Officer CASE Category
C K TAI	HQ/G S LAGERLOEF 33-Oceanography
	....W S WILSON

**NAGW 2609 University of California - San Diego 2542**  
PRODUCTION AND PROPAGATION OF SOLAR FLARE CHARGED PARTICLE SECONDARY

Period	Obligations
07/15/1991-02/28/1994	FY93: \$30,000 TOTAL: \$90,000
Prin. Invest.	NASA Tech. Officer CASE Category
R E LINGENFELTER	HQ/W V JONES 13-Physics
	....J C LING

**NAGW 2215 University of California - San Diego 2536**  
ASTEROID SURFACE PROCESSES

Period	Obligations
08/09/1990-12/31/1992	FY93: \$0 TOTAL: \$53,000
Prin. Invest.	NASA Tech. Officer CASE Category
L MCFADDEN	HQ/T A MAXWELL 32-Geological Sci

**NAGW 2618 University of California - San Diego 2543**  
ELECTRON DYNAMICS AND TRANSPORT PROPERTIES AT PLANETARY DISCONTINUITIES

Period	Obligations
07/18/1991-05/31/1994	FY93: \$43,000 TOTAL: \$144,623
Prin. Invest.	NASA Tech. Officer CASE Category
D KRAUSS-VARBAN	HQ/M M MELLOTT 13-Physics
	....J D BOHLIN

**NAGW 2251 University of California - San Diego 2537**  
NAGW-2251/UNIV CA/ISOTOPIC FRACTIONATION PROCESSES DURING PRE-SOLAR GRAIN FORMATION

Period	Obligations
05/23/1991-10/31/1993	FY93: \$37,000 TOTAL: \$109,000
Prin. Invest.	NASA Tech. Officer CASE Category
M H THIEMENS	HQ/J A NUTH 19-Phys Sci, NEC

**NAGW 2641 University of California - San Diego 2544**  
PERMANENT GPS GEODETIC ARRAY IN SOUTHERN CALIFORNIA

Period	Obligations
07/15/1991-09/30/1991	FY93: \$0 TOTAL: \$100,000
Prin. Invest.	NASA Tech. Officer CASE Category
Y BOCK	HQ/M BALTUCK 32-Geological Sci
	....B J MALCOLM

# **NASA'S UNIVERSITY PROGRAM CALIFORNIA (Continued)**

**NAGW 2727 University of California - San Diego 2545**  
TRACE GAS EMISSIONS TO THE ATMOSPHERE BY BIOMASS BURNING IN THE WEST AFRICAN SAVANNAS  
*Period Obligations*  
09/10/1991-09/30/1993 FY93: \$0 TOTAL: \$249,510  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R J FROUIN HQ/A C JANETOS 39-Env Sci, NEC  
....R T WATSON

**NAGW 2729 University of California - San Diego 2546**  
NAGW-2729/UNIV CA/CARBON AND HYDROGEN ISOTOPE COMPOSITION AND 14C CONCENTRATION IN METHANE FROM SOURCES  
*Period Obligations*  
09/20/1991-12/31/1991 FY93: \$0 TOTAL: \$34,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
M WAHLEN HQ/A C JANETOS 39-Env Sci, NEC  
....D E WICKLAND

**NAGW 2746 University of California - San Diego 2547**  
ENVIRONMENTAL RESEARCH  
*Period Obligations*  
09/19/1991-11/30/1993 FY93: \$0 TOTAL: \$57,100  
*Prin. Invest. NASA Tech. Officer CASE Category*  
U HERZFELD HQ/R SCHIFFER 39-Env Sci, NEC  
C DE MOUSTIER ....D M BUTLER

**NAGW 2774 University of California - San Diego 2548**  
OCEAN COLOR REMOTE SENSING DURING THE 1992 RACER CAMPAIGN USING THE AIRBORNE POLDER INST.  
*Period Obligations*  
11/15/1991-12/31/1993 FY93: \$45,000 TOTAL: \$272,004  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R FROUIN HQ/B G MITCHELL 33-Oceanography  
....D E WICKLAND

**NAGW 2849 University of California - San Diego 2549**  
OBSERVATIONAL BIAS ANALYSIS OF THE NEAR-EARTH ASTEROID POPULATION  
*Period Obligations*  
01/29/1992-04/30/1993 FY93: \$0 TOTAL: \$75,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
L MCFADDEN HQ/W L QUAIDE 11-Astronomy

**NAGW 2881 University of California - San Diego 2550**  
THE CHEMISTRY OF EARLY SELF-REPLICATING SYSTEMS  
*Period Obligations*  
02/26/1992-12/31/1993 FY93: \$942,000 TOTAL: \$1,867,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
S L MILLER HQ/R J WHITE 59-Life Sci, NEC

**NAGW 2946 University of California - San Diego 2551**  
EXPERIMENTAL MEASUREMENT AND THEORETICAL MODELLING OF MICROWAVE SCATTERING  
*Period Obligations*  
03/06/1992-03/31/1994 FY93: \$100,000 TOTAL: \$224,428  
*Prin. Invest. NASA Tech. Officer CASE Category*  
W K MELVILLE HQ/J S THEON 33-Oceanography

**NAGW 2964 University of California - San Diego 2552**  
ANALYSIS OF LONG-TERM CLOUD COVER, RADIATIVE FLUXES, AND SEA SURFACE TEMPERATURES IN THE EASTERN  
*Period Obligations*  
03/20/1992-12/31/1993 FY93: \$161,147 TOTAL: \$304,957  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J J SIMPSON HQ/J C DODGE 33-Oceanography  
....R A SCHIFFER

**NAGW 2966 University of California - San Diego 2553**  
GEOMAGNETIC FIELD MODELS INCORPORATING PHYSICAL CONSTRAINTS ON THE SECULAR VARIATION  
*Period Obligations*  
03/11/1992-12/31/1993 FY93: \$74,000 TOTAL: \$145,424  
*Prin. Invest. NASA Tech. Officer CASE Category*  
C CONSTABLE HQ/A J ANDERSON 32-Geological Sci  
....N B DOUGLAS

**NAGW 2967 University of California - San Diego 2554**  
HYDROMAGNETIC CONDITIONS NEAR THE CORE-MANTLE BOUNDARY  
*Period Obligations*  
03/10/1992-03/14/1994 FY93: \$42,000 TOTAL: \$82,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
G BACKUS HQ/R E MURPHY 32-Geological Sci  
....D M BUTLER

**NAGW 2987 University of California - San Diego 2555**  
ASSESSMENT OF ANTHROPOGENIC AND CLIMATE IMPACTS ON THE GLOBAL CARBON CYCLE  
*Period Obligations*  
03/20/1992-01/31/1994 FY93: \$170,000 TOTAL: \$330,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
C D KEELING HQ/R E MURPHY 39-Env Sci, NEC  
....D M BUTLER

**NAGW 3035 University of California - San Diego 2556**  
NAGW-3035/UNIV CA @ SAN DIEGO/GLOBAL GEODYNAMIC APPLICATIONS OF SATELLITE ALTIMETRY  
*Period Obligations*  
04/17/1992-12/31/1993 FY93: \$73,000 TOTAL: \$143,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D T SANDWELL HQ/R E MURPHY 32-Geological Sci  
....D M BUTLER

**NAGW 3127 University of California - San Diego 2557**  
MID-INFRARED OBSERVATIONAL AND THEORETICAL STUDIES OF STAR FORMATION AND EARLY SOLAR SYSTEMS  
*Period Obligations*  
07/15/1992-05/31/1994 FY93: \$25,000 TOTAL: \$50,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
B JONES HQ/J A NUTH 19-Phys Sci, NEC

**NAGW 3128 University of California - San Diego 2558**  
USE OF DZCS DATA IN MODELING OCEAN SEASONAL THERMOCLINE  
*Period Obligations*  
07/24/1992-04/30/1993 FY93: \$80,000 TOTAL: \$153,124  
*Prin. Invest. NASA Tech. Officer CASE Category*  
P NIILER HQ/R E MURPHY 33-Oceanography  
....J A KAYE



**NASA'S UNIVERSITY PROGRAM  
CALIFORNIA (Continued)**

**NAGW 3179 University of California - San Diego 2559**  
NAGW-3179/UNIV CA @ SAN DIEGO/STUDIES OF PLASMA FLOW  
PAST JUPITER'S SATELLITE IO  
*Period* *Obligations*  
09/12/1992-08/31/1993 FY93: \$0 TOTAL: \$58,801  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J LINKER HQ/E C WHIPPLE 13-Physics  
....J D BOHLIN

**NAGW 3247 University of California - San Diego 2560**  
VIDEO LESSON PLANS FOR JUNIOR HIGH SCHOOL  
*Period* *Obligations*  
10/26/1992-07/31/1994 FY93: \$5,000 TOTAL: \$5,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
W H TUCKER HQ/L S LAPIANA 11-Astronomy  
....G P NEWTON

**NAGW 3255 University of California - San Diego 2561**  
NAGW-3255/UNIV CA @ SAN DIEGO/HISTORICAL STUDIES ON  
EXTRATERRESTRIAL MATERIALS  
*Period* *Obligations*  
11/27/1992-12/15/1992 FY93: \$0 TOTAL: \$0  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J R ARNOLD HQ/H C BRINTON 32-Geological Sci

**NAGW 3285 University of California - San Diego 2562**  
NAGW-3285/SCRIPPS INST. OF OCEANOGRAPHY/ISOTOPIC,  
CHEMICAL, AND MINERALOGICAL INVESTIGATIONS  
*Period* *Obligations*  
11/27/1992-11/30/1993 FY93: \$298,932 TOTAL: \$298,932  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
G W LUGMAIR HQ/H C BRINTON 32-Geological Sci

**NAGW 3428 University of California - San Diego 2563**  
FRAGMENTARY SOLAR SYSTEM HISTORY  
*Period* *Obligations*  
03/01/1993-12/31/1993 FY93: \$121,540 TOTAL: \$121,540  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
K MARTI HQ/H C BRINTON 32-Geological Sci

**NAGW 3498 University of California - San Diego 2564**  
INVERSION SCHEMES TO RETRIEVE PARAMETERS FROM SCA  
*Period* *Obligations*  
04/29/1993-12/31/1993 FY93: \$45,535 TOTAL: \$45,535  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R FROUIN HQ/D E WICKLAND 33-Oceanography  
....A C JANETOS

**NAGW 3503 University of California - San Diego 2565**  
UNIV CALIF SAN DIEGO/ANALYSIS OF TRENCH/OUTER RISE  
TOPOGRAPHY ON VENUS  
*Period* *Obligations*  
04/12/1993-03/31/1994 FY93: \$55,836 TOTAL: \$55,836  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
D T SANDWELL HQ/J T BERGSTRALH 32-Geological Sci

**NAGW 3551 University of California - San Diego 2566**  
METEORITIC SULFUR ISOTOPIC ANALYSIS  
*Period* *Obligations*  
04/23/1993-02/28/1994 FY93: \$61,952 TOTAL: \$61,952  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
M THIEMANS HQ/J BOYCE 32-Geological Sci

**NAS 1-19336 University of California - San Diego 2567**  
EARTH RADIATION BUDGET EXPERIMENT (ERBE) SCIENCE TEAM  
SUPPORT  
*Period* *Obligations*  
03/01/1991-09/30/1993 FY93: \$0 TOTAL: \$336,500  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
V BAMANATHAN LARC/R J KEYNTON 31-Atmos Sci  
....J R YOUNGBLOOD

**NAS 5-24463 University of California - San Diego 2568**  
SPACE TELESCOPE SCIENTIFIC INVESTIGATION USING A FAINT  
OBJECT SPECTROGRAPH  
*Period* *Obligations*  
02/28/1978-11/30/1991 FY93: \$0 TOTAL: \$47,564,693  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R J HARMS GSFC/J L SHANNON 11-Astronomy  
....W P SOURS

**NAS 5-30107 University of California - San Diego 2569**  
GUARANTEED TIME OBSERVATIONS OF THE HIGH RESOLUTION  
SPECTROGRAPH OF THE HUBBLE SPACE TELESCOPE  
*Period* *Obligations*  
07/13/1987-01/14/1992 FY93: \$0 TOTAL: \$459,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
E A BEAVER GSFC/A D VITAGLIANO 11-Astronomy

**NAS 5-30549 University of California - San Diego 2570**  
DEVELOPMENT OF IN-FLIGHT SOFTWARE AND DATA ANALYSIS  
*Period* *Obligations*  
06/06/1989-03/31/1995 FY93: \$0 TOTAL: \$550,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
W FILLIUS GSFC/J SCUDDER 22-Computer Science

**NAS 5-30720 University of California - San Diego 2571**  
HIGH ENERGY X-RAY TIMING EXPERIMENT FOR XTE PROJECT  
*Period* *Obligations*  
11/01/1989-09/30/1993 FY93: \$5,416,000 TOTAL: \$22,161,984  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R E ROTHSCHILD GSFC/W D DAVIS 11-Astronomy

**NAS 5-32069 University of California - San Diego 2572**  
SCANNING AND POINTING DATA PRODUCTS  
*Period* *Obligations*  
11/02/1992-11/01/1994 FY93: \$74,500 TOTAL: \$74,500  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
D E GRUBER GSFC/D WEST 22-Computer Science

**NAS 5-33019 University of California - San Diego 2573**  
GLRS SCIENCE TEAM MEMBER STUDY  
*Period* *Obligations*  
10/05/1989-10/31/1993 FY93: \$0 TOTAL: \$83,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J B MINSTER GSFC/G SOFFEN 39-Env Sci, NEC

**NAS 8-36081 University of California - San Diego 2574**  
R (SD)  
*Period* *Obligations*  
06/01/1984-12/31/1992 FY93: \$0 TOTAL: \$3,109,749  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J L MATTESON MSFC/B J SCHRICK 11-Astronomy

**NASA'S UNIVERSITY PROGRAM  
CALIFORNIA (Continued)**

**NAS 9-16037 University of California - San Diego 2575**  
LIFE SCI FLT EXPER PULMONARY FUNCTION  
*Period Obligations*  
01/17/1980-01/01/1994 FY93: \$496,000 TOTAL: \$6,346,085  
*Prin. Invest. NASA Tech. Officer CASE Category*  
C WEST JSC/C DAVIS 59-Life Sci, NEC

**NAS 9-18764 University of California - San Diego 2576**  
STUDIES OF PULMONARY FUNCTION IN WEIGHTLESSNESS  
*Period Obligations*  
10/02/1992-08/01/1993 FY93: \$310,112 TOTAL: \$310,112  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J B WEST JSC/V ELLERBE 59-Life Sci, NEC

**NASW 4507 University of California - San Diego 2577**  
RESEARCH STUDY ENTITLED, THE RESEARCH DEVELOPMENT AND  
TECHNOLOGY TRANSFER OF NEVRAL NETWORK-BASED  
*Period Obligations*  
07/11/1990-07/10/1994 FY93: \$74,320 TOTAL: \$747,212  
*Prin. Invest. NASA Tech. Officer CASE Category*  
P M CHAU HQ/L D CAUDILL 49-Engr, NEC

**NCA 2-791 University of California - San Diego 2578**  
AN INVESTIGATION OF THE MICROPHYSICAL PROPERTIES A ND  
CLIMATIC IMPACT OF TROPICAL CIRRUS ANVILS  
*Period Obligations*  
02/12/1993-03/19/1995 FY93: \$39,433 TOTAL: \$39,433  
*Prin. Invest. NASA Tech. Officer CASE Category*  
V RAMANTHAN ARC/B TOON 31-Atmos Sci

**NCC 2-556 University of California - San Diego 2579**  
QUANITATION OF DISUSE ALTERATIONS IN HUMAN MUSCULOETAL  
TISSUE AS A MODEL FOR WEIGHTLESSNESS  
*Period Obligations*  
09/01/1988-10/31/1992 FY93: \$0 TOTAL: \$23,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
B J TUCKER ARC/A R HARGENS 56-Medical Sciences

**NCC 2-591 University of California - San Diego 2580**  
DISTRIBUTED COGNITION IN AVIATION  
*Period Obligations*  
03/10/1989-01/31/1994 FY93: \$140,000 TOTAL: \$718,742  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D A NORMAN ARC/E A PALMER 62-Social Aspects  
E L HUTCHINIS ....R R HOFSTRAND

**NCC 2-712 University of California - San Diego 2581**  
NASTRAN MODELING OF FLIGHT TEST COMPONENTS FOR UH -60A  
AIRLOADS PROGRAM TEST CONFIGURATION  
*Period Obligations*  
05/07/1991-02/28/1993 FY93: \$0 TOTAL: \$39,978  
*Prin. Invest. NASA Tech. Officer CASE Category*  
F SEIBLE ARC/K S HAMADE 41-Aero Engr  
F IDOSOR ....J F MADDEN

**NCC 2-718 University of California - San Diego 2582**  
ELECTRON-BEAM FLUORESCENCE METHODS FOR HYPERSONIC  
FLOW DIAGNOSTICS  
*Period Obligations*  
06/27/1991-02/28/1993 FY93: \$0 TOTAL: \$212,500  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R J CATTOLICA ARC/R K BOGUE 13-Physics

**NCC 2-792 University of California - San Diego 2583**  
A PILOT'S LANDING ASSISTANCE SYSTEM  
*Period Obligations*  
04/22/1993-03/31/1994 FY93: \$80,000 TOTAL: \$80,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R JAIN ARC/B SRIDHAR 22-Computer Science  
....V H CHENG

**NCC 2-820 University of California - San Diego 2584**  
MULTIDIMENSIONAL NUMERICAL MODELING OF CIRRUS CLOU DS  
*Period Obligations*  
08/16/1993-06/30/1995 FY93: \$53,920 TOTAL: \$53,920  
*Prin. Invest. NASA Tech. Officer CASE Category*  
P J FLATAU ARC/D L WESTPHAL 31-Atmos Sci  
....O B TOON

**NCC 3-173 University of California - San Diego 2585**  
NONLINEAR BEHAVIOR OF SPINNING PRETWISTED LAMINATE D  
COMPOSITE PLATES  
*Period Obligations*  
05/31/1990-09/30/1993 FY93: \$0 TOTAL: \$59,500  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J B KOSMATKA LERC/O MEHMED 46-Mech Engr  
....G STEFKO

**NCC 3-309 University of California - San Diego 2586**  
PASSIVE VIBRATION REDUCTION OF ADVANCED COMPOSITE  
PRETWISTED PLATES USING INTEGRAL DAMPING MATERAILS  
*Period Obligations*  
05/28/1993-05/09/1994 FY93: \$25,000 TOTAL: \$25,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J B KOSMATKA LERC/O MEHMER 46-Mech Engr  
....G STEFKO

**NCC 5-48 University of California - San Diego 2587**  
BIO-OPTICAL DATABASES IN SUPPORT OF SEAWIFS ALGORI THM  
DEVELOPMENT  
*Period Obligations*  
07/08/1992-12/31/1993 FY93: \$50,000 TOTAL: \$115,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
B G MITCHELL GSFC/C R MCCLAIN 33-Oceanography  
....S B HOOKER

**NCC10-7 University of California - San Diego 2588**  
COOP RESEARCH AGREEMENT PROPOSAL TO PROVIDE KSC QA  
WITH MGMT TOOL TO DEMO CAPABILITY TO SHUTTLE OPER  
*Period Obligations*  
11/01/1990-01/15/1993 FY93: \$0 TOTAL: \$70,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
S K RIDE KSC/T GALLINA 99-Multi-Discip

# NASA'S UNIVERSITY PROGRAM

## CALIFORNIA (Continued)

**NGL 5-5007 University of California - San Diego 2589**  
 DETECTORS, DETECTOR SYSTEMS AND TELEMETERED-DATA  
 PROCESSING EQUIPMENT. DEVELOPMENT OF PARTICLE

Period	Obligations	
02/20/1964-03/31/1992	FY93: \$0	TOTAL: \$4,536,364
Prin. Invest.	NASA Tech. Officer	CASE Category
C E MCILWAIN	HQ/M D DESCH	13-Physics
	....T E EASTMAN	

**NGT 00-030-119 University of California - San Diego 2590**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM

Period	Obligations	
10/31/1992-08/31/1993	FY93: \$22,000	TOTAL: \$22,000
Prin. Invest.	NASA Tech. Officer	CASE Category
D J KRAIMAN	HQ/G ASRAR	22-Computer Science
	....D M BUTLER	

**NGT 00-040-005 University of California - San Diego 2591**  
 NATIONAL SPACE GRANT COLLEGE AND FELLOWSHIP PROGRAM

Period	Obligations	
10/02/1989-01/31/1994	FY93: \$383,000	TOTAL: \$1,488,000
Prin. Invest.	NASA Tech. Officer	CASE Category
J ARNOLD	HQ/E T SCHWARTZ	99-Multi-Discip

**NGT 00-050-570 University of California - San Diego 2592**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM

Period	Obligations	
07/24/1990-06/30/1993	FY93: \$0	TOTAL: \$66,000
Prin. Invest.	NASA Tech. Officer	CASE Category
P M CHAU	HQ/F C OWENS	45-Elec Engr

**NGT 00-050-776 University of California - San Diego 2593**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM

Period	Obligations	
07/01/1991-06/30/1994	FY93: \$22,000	TOTAL: \$87,729
Prin. Invest.	NASA Tech. Officer	CASE Category
B JONES	HQ/F C OWENS	13-Physics

**NGT 00-050-854 University of California - San Diego 2594**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM

Period	Obligations	
09/04/1991-08/31/1994	FY93: \$19,334	TOTAL: \$63,334
Prin. Invest.	NASA Tech. Officer	CASE Category
T HAYWARD	HQ/F C OWENS	33-Oceanography

**NGT 00-050-935 University of California - San Diego 2595**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM

Period	Obligations	
05/21/1992-06/30/1994	FY93: \$22,000	TOTAL: \$44,000
Prin. Invest.	NASA Tech. Officer	CASE Category
K QUEST	HQ/J K ALEXANDER	13-Physics

**NGT 00-051-060 University of California - San Diego 2596**  
 GRADUATE STUDENT RESEARCHERS PROGRAM

Period	Obligations	
05/27/1993-06/30/1994	FY93: \$22,000	TOTAL: \$22,000
Prin. Invest.	NASA Tech. Officer	CASE Category
D A MENDIS	HQ/D HOLLAND	13-Physics

**NGT 00-070-191 University of California - San Diego 2597**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
 MINORITY FOCUS PROGRAM

Period	Obligations	
09/11/1990-08/31/1993	FY93: \$22,000	TOTAL: \$66,000
Prin. Invest.	NASA Tech. Officer	CASE Category
J B KOSMATKA	HQ/F C OWENS	46-Mech Engr

**NGT 00-070-199 University of California - San Diego 2598**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
 MINORITY FOCUS PROGRAM

Period	Obligations	
06/22/1990-06/30/1993	FY93: \$0	TOTAL: \$66,000
Prin. Invest.	NASA Tech. Officer	CASE Category
J B KOSMATKA	HQ/F C OWENS	46-Mech Engr

**NGT 00-070-218 University of California - San Diego 2599**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
 MINORITY FOCUS PROGRAM

Period	Obligations	
07/24/1991-06/30/1993	FY93: \$0	TOTAL: \$43,729
Prin. Invest.	NASA Tech. Officer	CASE Category
T M O'NEIL	GSFC/G SOFFEN	13-Physics

**NGT 00-070-224 University of California - San Diego 2600**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
 MINORITY FOCUS PROGRAM

Period	Obligations	
05/13/1991-06/30/1993	FY93: \$0	TOTAL: \$44,000
Prin. Invest.	NASA Tech. Officer	CASE Category
G RICLES	HQ/F C OWENS	46-Mech Engr

**NGT 00-070-317 University of California - San Diego 2601**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
 MINORITY FOCUS PROGRAM

Period	Obligations	
06/30/1993-06/30/1994	FY93: \$22,000	TOTAL: \$22,000
Prin. Invest.	NASA Tech. Officer	CASE Category
A SCHNEIDER	HQ/D K RUSSELL	49-Engr, NEC

**NAG 2-770 University of California - San Francisco 2602**  
 K-7-04: MINERAL DISTRIBUTION AND BALANCE IN RATS DU RING  
 SPACEFLIGHT

Period	Obligations	
03/25/1992-06/30/1992	FY93: \$0	TOTAL: \$16,142
Prin. Invest.	NASA Tech. Officer	CASE Category
C E CANN	ARC/J P CONNOLLY	51-Biological Sci
	....R W BALLARD	

**NAG 2-779 University of California - San Francisco 2603**  
 NEURAL MECHANISMS BY WICH GRAVITATIONAL STIMULI AND  
 STRESS AFFECT THE SECRETION OF RENIN AND OTHER .....

Period	Obligations	
04/16/1992-01/31/1994	FY93: \$58,200	TOTAL: \$116,400
Prin. Invest.	NASA Tech. Officer	CASE Category
W F GANONG	ARC/C E WADE	51-Biological Sci
I A REID		
L C KEIL		

**NASA'S UNIVERSITY PROGRAM  
CALIFORNIA (Continued)**

**NAG 2-790 University of California - San Francisco 2604**

AN INTEGRATED MODEL OF THE PRIMATE SKELETAL RESPONSE TO SPACEFLIGHT

<i>Period</i>	<i>Obligations</i>	
06/24/1992-06/30/1993	FY93: \$0	TOTAL: \$45,980
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
C CANN	ARC/C M WINGET	56-Medical Sciences

**NAG 9-343 University of California - San Francisco 2605**

QCT: DEVELOPMENTS AND APPLICATIONS

<i>Period</i>	<i>Obligations</i>	
01/01/1989-06/02/1992	FY93: \$104	TOTAL: \$291,887
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
H K GENANT	JSC/V S SCHNEIDER	56-Medical Sciences

**NAG 9-603 University of California - San Francisco 2606**

ADVANCING METHODS OF BONE MINERAL DENSITY AND STRUCTURE ASSESSMENT

<i>Period</i>	<i>Obligations</i>	
06/01/1992-06/01/1994	FY93: \$80,000	TOTAL: \$158,800
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
H K GENANT	JSC/V S SCHNEIDER	56-Medical Sciences

**NAGW 1244 University of California - San Francisco 2607**

MECHANISM OF CONTROL OF BONE GROWTH BY PROSTAGLANDINS

<i>Period</i>	<i>Obligations</i>	
12/28/1987-12/31/1993	FY93: \$65,000	TOTAL: \$491,729
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
M H FULFORD	HQ/T W HALSTEAD	51-Biological Sci

**NAGW 1611 University of California - San Francisco 2608**

NEURAL MECHANISMS BY WHICH GRAVITATIONAL STIMULI

<i>Period</i>	<i>Obligations</i>	
01/19/1989-01/31/1993	FY93: \$0	TOTAL: \$180,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
W F GANONG	HQ/T W HALSTEAD	51-Biological Sci

**NAS 9-16227 University of California - San Francisco 2609**

LIFE SCI EXPER/MINERAL LOSS/EXCRETION

<i>Period</i>	<i>Obligations</i>	
10/21/1980-12/31/1994	FY93: \$197,000	TOTAL: \$1,367,697
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
C D ARMAUD	JSC/K E NEWKIRK	59-Life Sci, NEC

**NAS 9-18769 University of California - San Francisco 2610**

SLS-3 FLIGHT EXPERIMENT

<i>Period</i>	<i>Obligations</i>	
10/20/1992-11/30/1993	FY93: \$130,814	TOTAL: \$130,814
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
C CANN	JSC/V ELLERBE	51-Biological Sci

**NCA 2-726 University of California - San Francisco 2611**

TEMPERATURE DEPENDENCE OF THE HYDROPHOBIC EFFECT

<i>Period</i>	<i>Obligations</i>	
07/06/1992-09/30/1992	FY93: \$0	TOTAL: \$20,824
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
A POHORILLE	ARC/S CHANG	12-Chemistry

**NCA 2-792 University of California - San Francisco 2612**

PARALLEL ALGORITHMS FOR THE SIMULATION OF PROTOBIOLOGICAL MEMBRANES

<i>Period</i>	<i>Obligations</i>	
02/16/1993-02/28/1994	FY93: \$39,996	TOTAL: \$39,996
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
A POHORILLE	ARC/S CHANG	12-Chemistry

**NCC 2-115 University of California - San Francisco 2613**

PREVENTIVE METHOD FOR THE ZERO GRAVITY SICKNESS SYNDROME

<i>Period</i>	<i>Obligations</i>	
01/01/1981-12/31/1992	FY93: \$19,677	TOTAL: \$2,662,183
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
J J KAMIYA	ARC/P J KIRK	56-Medical Sciences

**NCC 2-194 University of California - San Francisco 2614**

THE ROLE OF LOW AND HIGH PRESSURE BARORECEPTORS IN THE CONTROL OF

<i>Period</i>	<i>Obligations</i>	
06/01/1982-11/30/1991	FY93: \$0	TOTAL: \$212,035
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
D J RAMSAY	ARC/L C KEIL	59-Life Sci, NEC
T THRASHER		

**NCC 2-589 University of California - San Francisco 2615**

GRAVITY AND SKELETAL GROWTH

<i>Period</i>	<i>Obligations</i>	
03/15/1989-10/31/1993	FY93: \$266,627	TOTAL: \$1,083,619
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
E M HOLTON	ARC/S B ARNAUD	51-Biological Sci

**NCC 2-597 University of California - San Francisco 2616**

BONE CALCIUM AND SPACEFLIGHT

<i>Period</i>	<i>Obligations</i>	
05/15/1989-09/30/1993	FY93: \$36,443	TOTAL: \$87,345
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
C E CANN	ARC/E M HOLTON	51-Biological Sci

**NCC 2-764 University of California - San Francisco 2617**

FLUDROCORTISONE: ROLE IN CENTRAL REGULATION OF FLUID BALANCE

<i>Period</i>	<i>Obligations</i>	
06/17/1992-03/31/1994	FY93: \$0	TOTAL: \$176,073
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
M F DALLMAN	ARC/J VERNIKOS	56-Medical Sciences

**NCC 2-772 University of California - San Francisco 2618**

MOLECULAR SELF-ORGANIZATION AND THE ORIGIN OF LIFE: FORMATION AND FUNCTIONS OF PROTOCELLS

<i>Period</i>	<i>Obligations</i>	
10/16/1992-09/30/1994	FY93: \$164,981	TOTAL: \$164,981
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
A POHORILLE	ARC/S CHANG	12-Chemistry

**NASA'S UNIVERSITY PROGRAM  
CALIFORNIA (Continued)**

**NAG 1-1376 University of California - Santa Barbara 2619**  
STRUCTURAL QUALIFICATION OF COMPOSITE AIRFRAMES  
*Period* *Obligations*  
02/13/1992-01/26/1994 FY93: \$65,000 TOTAL: \$149,015  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
K T KEDWARD LARC/J H STARNES 41-Aero Engr  
...../M J SHUART

**NAG 3-894 University of California - Santa Barbara 2620**  
THEORETICAL DAMAGE MECHANICS FOR METAL-METAL COMPOSITES  
*Period* *Obligations*  
04/12/1988-12/31/1993 FY93: \$49,999 TOTAL: \$379,950  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
F A LECKIE LERC/S M ARNOLD 46-Mech Engr

**NAG 5-917 University of California - Santa Barbara 2621**  
SURFACE CLIMATE PARAMETERS W/SATELLITE AND TERRAIN DATA FIFE  
*Period* *Obligations*  
06/01/1987-06/30/1994 FY93: \$85,000 TOTAL: \$476,893  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J DOZIER GSFC/B CHOUDHURY 39-Env Sci, NEC  
F DAVIS ...../F HALL

**NAG 5-1315 University of California - Santa Barbara 2622**  
COBE DATA ANALYSIS  
*Period* *Obligations*  
12/07/1989-12/31/1991 FY93: \$0 TOTAL: \$39,200  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
P LUBIN GSFC/J MATHER 11-Astronomy

**NAG 8-812 University of California - Santa Barbara 2623**  
SUPPORT OF THE WETNET PROGRAM  
*Period* *Obligations*  
02/15/1990-01/31/1992 FY93: \$326 TOTAL: \$149,540  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J E ESTES MSFC/H M GOODMAN 39-Env Sci, NEC  
J L STARS

**NAG 8-929 University of California - Santa Barbara 2624**  
R/S SUPPORT OF THE WETNET PROGRAM  
*Period* *Obligations*  
07/27/1992-07/19/1993 FY93: \$0 TOTAL: \$74,996  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J E ESTES MSFC/M GOODMAN 39-Env Sci, NEC

**NAGW 290 University of California - Santa Barbara 2625**  
SHIP AND SATELLITE BIO-OPTICAL RESEARCH IN THE CALIFORNIA BIGHT  
*Period* *Obligations*  
02/01/1982-01/31/1994 FY93: \$264,000 TOTAL: \$3,094,840  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R C SMITH HQ/M R LEWIS 33-Oceanography  
K S BAKER ...../W S WILSON

**NAGW 1062 University of California - Santa Barbara 2626**  
ADVANCED RADIOMETER DEVELOPMENT  
*Period* *Obligations*  
07/01/1987-09/30/1993 FY93: \$160,000 TOTAL: \$793,205  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
P M LUBIN HQ/F C GILLET 11-Astronomy  
...../E J WEILER

**NAGW 1265 University of California - Santa Barbara 2627**  
SNOW RADIATIVE TRANSFER AND MEASUREMENT OF SNOW PROPERTIES  
*Period* *Obligations*  
04/07/1988-09/30/1992 FY93: \$0 TOTAL: \$346,659  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J DOZIER HQ/G ASRAR 39-Env Sci, NEC  
R E DAVIS ...../R E MURPHY

**NAGW 1743 University of California - Santa Barbara 2628**  
REMOTE SENSING INFORMATION SCIENCES RESEARCH GROUP  
*Period* *Obligations*  
05/16/1989-04/30/1994 FY93: \$904,000 TOTAL: \$4,602,441  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J E ESTES HQ/A J TUYAHOV 99-Multi-Discip  
T R SMITH  
J L STAR

**NAGW 1948 University of California - Santa Barbara 2629**  
NONMARINE STROMATOLITES AND THE SEARCH FOR PAST LI FE ON MARS  
*Period* *Obligations*  
05/01/1990-11/30/1992 FY93: \$0 TOTAL: \$207,461  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
S M AWRAMIK HQ/J D RUMMEL 32-Geological Sci

**NAGW 2027 University of California - Santa Barbara 2630**  
INTEGRABLE, FIELD-INDUCED GUIDES (FIGS) FOR THE MO DULATION AND SWITCHING OF LIGHTWAVES  
*Period* *Obligations*  
04/27/1990-08/31/1993 FY93: \$90,000 TOTAL: \$393,537  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
L A COLDREN HQ/G I JOHNSTON 19-Phys Sci, NEC

**NAGW 2061 University of California - Santa Barbara 2631**  
SOLAR SYSTEM PHYSICS  
*Period* *Obligations*  
04/10/1990-09/30/1993 FY93: \$73,200 TOTAL: \$283,200  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
S J PEALE HQ/T A MAXWELL 13-Physics

**NAGW 2188 University of California - Santa Barbara 2632**  
THE GAMMA-RAY ARC-MINUTE TELESCOPE IMAGING SYSTEM (GRATIS)  
*Period* *Obligations*  
08/09/1990-03/31/1994 FY93: \$85,000 TOTAL: \$270,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
P LUBIN HQ/L KALNZIENSKI 13-Physics

**NAGW 2458 University of California - Santa Barbara 2633**  
REMOTE SENSING OF HEAT AND FRESH WATER EXCHANGE IN THE TROPICAL PACIFIC  
*Period* *Obligations*  
04/11/1991-09/30/1992 FY93: \$0 TOTAL: \$185,594  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
C GAUTIER HQ/J C DODGE 39-Env Sci, NEC  
...../D M BUTLER

**NASA'S UNIVERSITY PROGRAM  
CALIFORNIA (Continued)**

**NAGW 2460 University of California - Santa Barbara 2634**  
GLOBAL AIR-SEA ENERGY AND WATER EXCHANGES: A SCIENTIFIC CONTRIBUTION TO WETNET

Period	Obligations	
04/12/1991-09/30/1994	FY93: \$149,810	TOTAL: \$549,810
Prin. Invest.	NASA Tech. Officer	CASE Category
C GAUTIER	HQ/J C DODGE	31-Atmos Sci
	....A J TUYAHOV	

**NAGW 3180 University of California - Santa Barbara 2641**  
NAGW-3180/UNIV CA @ SANTA BARBARA/GLOBAL SURFACE SOLAR IRRADIANCE ESTIMATIONS FROM SATELLITE DATA

Period	Obligations	
09/23/1992-01/31/1994	FY93: \$100,000	TOTAL: \$150,000
Prin. Invest.	NASA Tech. Officer	CASE Category
C GAUTIER	HQ/J C DODGE	31-Atmos Sci

**NAGW 2602 University of California - Santa Barbara 2635**  
HYDROLOGY, HYDROCHEMICAL MODELING, AND REMOTE SENSING IN SEASONALLY SNOW-COVERED ALPINE DRAINAGE

Period	Obligations	
08/06/1991-12/31/1993	FY93: \$888,000	TOTAL: \$2,128,000
Prin. Invest.	NASA Tech. Officer	CASE Category
J DOZIER	HQ/G ASRAR	39-Env Sci, NEC
	....W S WILSON	

**NAGW 3245 University of California - Santa Barbara 2642**  
THE VCSB REMOTE ACCESS ASTRONOMY PROJECT

Period	Obligations	
11/16/1992-07/31/1993	FY93: \$5,000	TOTAL: \$5,000
Prin. Invest.	NASA Tech. Officer	CASE Category
P M LUBIN	HQ/L LAPIANA	11-Astronomy
	....G P NEWTON	

**NAGW 2724 University of California - Santa Barbara 2636**  
BIOGEOCHEMISTRY OF DISSOLVED GASES IN THE PANTANAL WETLAND OF BRAZIL

Period	Obligations	
09/10/1991-08/31/1993	FY93: \$0	TOTAL: \$230,000
Prin. Invest.	NASA Tech. Officer	CASE Category
J MELACK	HQ/A C JANETOS	39-Env Sci, NEC
	....D E WICKLAND	

**NAGW 3325 University of California - Santa Barbara 2643**  
THE SUPERFLUID TRANSITION OF 4HE IN THE PRESENCE OF A HEAT CURRENT

Period	Obligations	
12/31/1992-12/31/1993	FY93: \$130,000	TOTAL: \$130,000
Prin. Invest.	NASA Tech. Officer	CASE Category
G AHLERS	HQ/M C LEE	13-Physics

**NAGW 2737 University of California - Santa Barbara 2637**  
THE DEVELOPMENT OF PROTOTYPE SOFTWARE, SYSTEM FOR EDUCATION AND RESEARCH ON EARTH'S ATMOSPHERE

Period	Obligations	
09/24/1991-11/30/1992	FY93: \$0	TOTAL: \$60,000
Prin. Invest.	NASA Tech. Officer	CASE Category
C H GAUTIER	HQ/R A SCHIFFER	31-Atmos Sci
	....R T WATSON	

**NAGW 3350 University of California - Santa Barbara 2644**  
GEOPHYSICAL MODELING AND ANALYSIS OF SATELLITE ALTIMETRY GRAVITY AND MAGNETIC DATA

Period	Obligations	
01/15/1993-12/31/1993	FY93: \$98,946	TOTAL: \$98,946
Prin. Invest.	NASA Tech. Officer	CASE Category
P M LUBIN	HQ/R E MURPHY	13-Physics
A J ANDERSON	....B CHAO	

**NAGW 2837 University of California - Santa Barbara 2638**  
RESEARCH IN THE PHYSICS OF PLANET FORMATION

Period	Obligations	
01/31/1992-09/30/1993	FY93: \$61,653	TOTAL: \$122,649
Prin. Invest.	NASA Tech. Officer	CASE Category
LANGER	HQ/J A NUTH	19-Phys Sci, NEC

**NAS 5-30947 University of California - Santa Barbara 2645**  
STUDY OF LAND SURFACE TEMPERATURE MEASUREMENTS FROM MODIS DATA

Period	Obligations	
01/29/1991-01/14/1992	FY93: \$0	TOTAL: \$95,098
Prin. Invest.	NASA Tech. Officer	CASE Category
Z WAN	GSFC/H OSEROFF	31-Atmos Sci

**NAGW 2840 University of California - Santa Barbara 2639**  
NONLINEAR DROP DYNAMICS AND CHAOTIC PHENOMENA

Period	Obligations	
01/17/1992-11/30/1993	FY93: \$78,000	TOTAL: \$156,000
Prin. Invest.	NASA Tech. Officer	CASE Category
L G LEAL	HQ/B M CARPENTER	13-Physics

**NAS 5-31343 University of California - Santa Barbara 2646**  
RESEARCH FOR EOS HIRIS INSTRUMENT INVESTIGATION

Period	Obligations	
06/04/1991-06/03/1992	FY93: \$0	TOTAL: \$49,150
Prin. Invest.	NASA Tech. Officer	CASE Category
ROZIER	GSFC/T HAMILTON	31-Atmos Sci

**NAGW 3145 University of California - Santa Barbara 2640**  
SOLAR RADIATION PENETRATION, MODELING GLOBAL OCEAN CLIMATE AND SATELLITE OCEAN COLOR IMAGERY

Period	Obligations	
08/11/1992-07/31/1994	FY93: \$122,595	TOTAL: \$232,173
Prin. Invest.	NASA Tech. Officer	CASE Category
D A SIEGEL	HQ/R E MURPHY	33-Oceanography
	....J A KAYE	

**NAS 5-31370 University of California - Santa Barbara 2647**  
EOS INVESTIGATION

Period	Obligations	
12/23/1991-12/14/2001	FY93: \$240,000	TOTAL: \$389,902
Prin. Invest.	NASA Tech. Officer	CASE Category
Z WAN	GSFC/H OSEROFF	33-Oceanography

# **NASA'S UNIVERSITY PROGRAM** **CALIFORNIA (Continued)**

**NAS 5-31374 University of California - Santa Barbara 2648**  
 EOS INVESTIGATION - ATMOSPHERIC INFRARED SOUNDER (AIRS)  
 TEAM MEMBER INVESTIGATION

Period	Obligations	
03/04/1992-12/14/2001	FY93: \$25,000	TOTAL: \$130,000
Prin. Invest.	NASA Tech. Officer	CASE Category
C GAUTIER	GSFC/E KRIENS	39-Env Sci, NEC

**NAS 5-31710 University of California - Santa Barbara 2649**  
 EOS INVESTIGATION/HIRIS TEAM MEMBER

Period	Obligations	
09/17/1992-12/14/2001	FY93: \$20,000	TOTAL: \$128,850
Prin. Invest.	NASA Tech. Officer	CASE Category
D DOZLER	GSFC/T BRAKKE	32-Geological Sci

**NAS 5-31713 University of California - Santa Barbara 2650**  
 EOS INVESTIGATION/HIRIS TEAM MEMBER

Period	Obligations	
02/25/1992-12/14/2001	FY93: \$80,000	TOTAL: \$287,849
Prin. Invest.	NASA Tech. Officer	CASE Category
J M MELACK	GSFC/T BRAKE	31-Atmos Sci

**NCA 2-668 University of California - Santa Barbara 2651**  
 HIGH RESOLUTION IMAGE FORMATION TECHNIQUES FOR 3-D  
 IMENSIONAL TARGET REFLECTIVITY PROFILES

Period	Obligations	
11/04/1991-11/14/1993	FY93: \$0	TOTAL: \$30,000
Prin. Invest.	NASA Tech. Officer	CASE Category
H LEE	ARC/A WOO	45-Elec Engr

**NCC 2-63 University of California - Santa Barbara 2652**  
 INVESTIGATE EFFECT OF SURFACE IMPURITIES ADSORPTION  
 KINETICS OF HYDROGEN CHEMISORBED IRON

Period	Obligations	
04/01/1980-12/31/1993	FY93: \$124,025	TOTAL: \$1,389,332
Prin. Invest.	NASA Tech. Officer	CASE Category
M R SHANABARGER	ARC/H G NELSON	47-Materials Engr

**NCC 5-49 University of California - Santa Barbara 2653**  
 AUGMENTATION OF THE BERMUDA BIO-OPTICS PROGRAM IN  
 SUPPORT OF THE SEAWIFS SATELLITE MISSION

Period	Obligations	
07/22/1992-07/31/1993	FY93: \$0	TOTAL: \$60,000
Prin. Invest.	NASA Tech. Officer	CASE Category
D A SIEGEL	GSFC/C R MCCLAIN	33-Oceanography
	....S B HOOKER	

**NGT 00-030-013 University of California - Santa Barbara 2654**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM

Period	Obligations	
11/01/1990-08/31/1993	FY93: \$0	TOTAL: \$66,000
Prin. Invest.	NASA Tech. Officer	CASE Category
S K HAMILTON	HQ/G ASRAR	39-Env Sci, NEC

**NGT 00-030-057 University of California - Santa Barbara 2655**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM

Period	Obligations	
08/30/1991-12/31/1992	FY93: \$0	TOTAL: \$22,000
Prin. Invest.	NASA Tech. Officer	CASE Category
C WAELBROECK	HQ/D M BUTLER	39-Env Sci, NEC
C GAUTIER	....G S WILSON	

**NGT 00-030-138 University of California - Santa Barbara 2656**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM

Period	Obligations	
10/21/1992-08/31/1993	FY93: \$44,000	TOTAL: \$44,000
Prin. Invest.	NASA Tech. Officer	CASE Category
J A HICKE	HQ/G ASRAR	31-Atmos Sci
	....M BUTLER	

**NGT 00-030-141 University of California - Santa Barbara 2657**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM

Period	Obligations	
10/23/1992-08/31/1993	FY93: \$44,000	TOTAL: \$44,000
Prin. Invest.	NASA Tech. Officer	CASE Category
S A GARVER	HQ/G ASRAR	33-Oceanography
	....D M BUTLER	

**NGT 00-030-145 University of California - Santa Barbara 2658**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM

Period	Obligations	
10/23/1992-08/31/1993	FY93: \$44,000	TOTAL: \$44,000
Prin. Invest.	NASA Tech. Officer	CASE Category
A GERSHUNOV	HQ/G ASRAR	99-Multi-Discip
	....D M BUTLER	

**NGT 00-030-159 University of California - Santa Barbara 2659**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM

Period	Obligations	
10/30/1992-08/31/1993	FY93: \$44,000	TOTAL: \$44,000
Prin. Invest.	NASA Tech. Officer	CASE Category
Y CHEN	HQ/G ASRAR	22-Computer Science
	....D M BUTLER	

**NGT 00-030-204 University of California - Santa Barbara 2660**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM

Period	Obligations	
08/26/1993-08/31/1994	FY93: \$22,000	TOTAL: \$22,000
Prin. Invest.	NASA Tech. Officer	CASE Category
H COUCLELIS	HQ/G ASRAR	22-Computer Science
	....D M BUTLER	

**NGT 00-050-461 University of California - Santa Barbara 2661**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM

Period	Obligations	
08/14/1989-06/30/1992	FY93: \$0	TOTAL: \$62,000
Prin. Invest.	NASA Tech. Officer	CASE Category
J DOZIER	HQ/F C OWENS	19-Phys Sci, NEC

**NGT 00-050-780 University of California - Santa Barbara 2662**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM

Period	Obligations	
06/10/1991-06/30/1994	FY93: \$22,000	TOTAL: \$66,000
Prin. Invest.	NASA Tech. Officer	CASE Category
P M LUBIN	HQ/D HOLLAND	13-Physics

**NAG 2-813 University of California - Santa Cruz 2663**  
 ARE THER HIDDEN SUPERNOVAE?

Period	Obligations	
12/15/1992-09/30/1994	FY93: \$282,200	TOTAL: \$282,200
Prin. Invest.	NASA Tech. Officer	CASE Category
D M RANK	ARC/C D LAUGHLIN	11-Astronomy
J D BREGMAN	....C M GILLESPIE	

**NASA'S UNIVERSITY PROGRAM  
CALIFORNIA (Continued)**

**NAG 5-1604 University of California - Santa Cruz 2664**  
A ROSAT DEEP SURVEY OF THE BEST STUDIED HIGH LATITUDE AREAS

Period	FY93:	Obligations	TOTAL:	CASE Category
05/22/1991-06/14/1993	\$0		\$8,835	
Prin. Invest.	NASA Tech. Officer			
D C KOO	GSFC/R PETRE			11-Astronomy

**NAG 5-1749 University of California - Santa Cruz 2665**  
CELLULAR DYNAMICAL SYSTEMS

Period	FY93:	Obligations	TOTAL:	CASE Category
08/15/1991-08/31/1992	\$0		\$25,000	
Prin. Invest.	NASA Tech. Officer			
R ABRAHAM	GSFC/J E DORBAND			29-Math/Computer, NEC
	....J R FISCHER			

**NAG 5-1767 University of California - Santa Cruz 2666**  
THE COEVOLUTION OF THE HR 1614 MOVING GROUP

Period	FY93:	Obligations	TOTAL:	CASE Category
09/10/1991-09/14/1993	\$0		\$14,000	
Prin. Invest.	NASA Tech. Officer			
G H SMITH	GSFC/D WEST			11-Astronomy

**NAG 5-1916 University of California - Santa Cruz 2667**  
TOWARD AN AGE CALIBRATION OF MG II CHROMOSPHERIC EMISSION IN F.G.K. DWARF STARS

Period	FY93:	Obligations	TOTAL:	CASE Category
02/26/1992-02/28/1994	\$0		\$4,000	
Prin. Invest.	NASA Tech. Officer			
G H SMITH	GSFC/D WEST			11-Astronomy

**NAG 5-2073 University of California - Santa Cruz 2668**  
HYDRODYNAMICS OF SUPERNOVAE AND IMPLICATIONS FOR GAMMA-RAY ASTROPHYSICS

Period	FY93:	Obligations	TOTAL:	CASE Category
08/25/1992-08/31/1994	\$50,000		\$100,000	
Prin. Invest.	NASA Tech. Officer			
M HERANT	GSFC/J P NORRIS			11-Astronomy
	....N WHITE			

**NAG 5-2262 University of California - Santa Cruz 2669**  
CROSS-CORRELATION OF DIFFUSE X-RAY BACKGROUND WITH RICH CLUSTER FLUX

Period	FY93:	Obligations	TOTAL:	CASE Category
05/04/1993-05/14/1994	\$7,339		\$7,339	
Prin. Invest.	NASA Tech. Officer			
J R PRIMACK	GSFC/K M JAHODA			11-Astronomy
M GROSS				

**NAG 8-932 University of California - Santa Cruz 2670**  
SCIENCE EVALUATION AND CONCEPTS FOR UV-IR SPACE TELESCOPES

Period	FY93:	Obligations	TOTAL:	CASE Category
08/06/1992-08/23/1993	\$0		\$15,000	
Prin. Invest.	NASA Tech. Officer			
G D ILLINGWORTH	MSFC/M E NEIN			11-Astronomy

**NAGW 590 University of California - Santa Cruz 2671**  
STRUCTURE OF SATURN'S RING: COLLISION PROPERTIES OF WATER-ICE PARTICLES

Period	FY93:	Obligations	TOTAL:	CASE Category
02/01/1984-06/30/1994	\$34,500		\$339,780	
Prin. Invest.	NASA Tech. Officer			
F BRIDGES	HQ/J R UNDERWOOD			32-Geological Sci
D N LIN	....J M BOYCE			

**NAGW 1273 University of California - Santa Cruz 2672**  
HIGH ENERGY NUCLEOSYNTHESIS SYSTEMS

Period	FY93:	Obligations	TOTAL:	CASE Category
03/31/1988-12/31/1991	\$26		\$277,699	
Prin. Invest.	NASA Tech. Officer			
S E WOOSLEY	HQ/G CLAYTON			13-Physics
	....W V JONES			

**NAGW 1577 University of California - Santa Cruz 2673**  
CONSTRAINTS ON PLANETARY EVOLUTION FROM THE STUDY

Period	FY93:	Obligations	TOTAL:	CASE Category
12/21/1988-12/31/1992	\$0		\$221,006	
Prin. Invest.	NASA Tech. Officer			
Q WILLIAMS	HQ/J K ALEXANDER			32-Geological Sci
	....D A HOLLAND			

**NAGW 2415 University of California - Santa Cruz 2674**  
ADVANCED TECHNOLOGY AND ULTRA VIOLET PROGRAM

Period	FY93:	Obligations	TOTAL:	CASE Category
08/20/1991-07/14/1992	\$0		\$15,400	
Prin. Invest.	NASA Tech. Officer			
G ILLINGSWORTH	HQ/M KAPLAN			11-Astronomy

**NAGW 2422 University of California - Santa Cruz 2675**  
STRUCTURE AND EVOLUTION OF ASTROPHYSICAL DISKS

Period	FY93:	Obligations	TOTAL:	CASE Category
05/24/1991-12/31/1993	\$181,739		\$537,292	
Prin. Invest.	NASA Tech. Officer			
L E HERNQUIST	HQ/G S KUTTER			11-Astronomy
	....G R RIEGLER			

**NAGW 2525 University of California - Santa Cruz 2676**  
RADIATION TRANSPORT IN SUPERNOVAE AND RELATED PHENOMENA

Period	FY93:	Obligations	TOTAL:	CASE Category
05/29/1991-12/31/1993	\$96,644		\$299,124	
Prin. Invest.	NASA Tech. Officer			
S E WOOSLEY	HQ/G S KUTTER			11-Astronomy
	....G R RIEGLER			

**NAGW 2965 University of California - Santa Cruz 2677**  
SUMMER WORKSHOP IN ASTRONOMY AND ASTROPHYSICS ON THE GLOBULAR CLUSTER - GALAXY CONNECTION

Period	FY93:	Obligations	TOTAL:	CASE Category
03/11/1992-12/31/1992	\$0		\$24,881	
Prin. Invest.	NASA Tech. Officer			
J P BRODIE	HQ/L J CAROFF			11-Astronomy

**NAGW 3105 University of California - Santa Cruz 2678**  
COSMOLOGICAL IMPLICATIONS OF THE EFFECTS OF X-RAY CLUSTERS ON THE COSMIC MICROWAVE

Period	FY93:	Obligations	TOTAL:	CASE Category
06/16/1992-06/30/1993	\$0		\$18,000	
Prin. Invest.	NASA Tech. Officer			
G R BLUMENTHAL	HQ/L J KALUZIENSKI			11-Astronomy
	....A N BUNNER			



**NASA'S UNIVERSITY PROGRAM  
CALIFORNIA (Continued)**

**NAGW 3408 University of California - Santa Cruz 2679**  
 PROTOPLANETARY FORMATION AND THE FU ORIONIS OUTBURST  
*Period* *Obligations*  
 03/01/1993-02/28/1994 FY93: \$45,000 TOTAL: \$45,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 P H BODENHEIMER HQ/J A NUTH 19-Phys Sci, NEC

**NAGW 3599 University of California - Santa Cruz 2680**  
 WAVE PROPAGATION IN THE PRIMORDIAL SOLAR NEBULA  
*Period* *Obligations*  
 06/17/1993-05/31/1994 FY93: \$30,000 TOTAL: \$30,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 D LIN HQ/J A NUTH III 19-Phys Sci, NEC

**NCA 2-604 University of California - Santa Cruz 2681**  
 COMPUTER SIMULATIONS OF COMETARY AND INTERSTELLAR ICE  
*Period* *Obligations*  
 04/02/1991-08/31/1993 FY93: \$0 TOTAL: \$60,828  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 I BENJAMIN ARC/D BLAKE 12-Chemistry

**NCA 2-650 University of California - Santa Cruz 2682**  
 ORIGIN OF LIFE EXPLORATION OF WATER/AIR INTERFACE AS A REACTION  
*Period* *Obligations*  
 08/23/1991-08/31/1993 FY93: \$0 TOTAL: \$72,010  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 A KANAVARIOTI ARC/S CHANG 12-Chemistry

**NCA 2-661 University of California - Santa Cruz 2683**  
 DISSIPATION IN GALACTIC DISKS/TEMPORAL CHARACTERISTICS OF LOW-MASS X-RAY BINARIES  
*Period* *Obligations*  
 10/01/1991-09/16/1992 FY93: \$0 TOTAL: \$40,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 G ILLINGWORTH ARC/B F SMITH 11-Astronomy  
 T STEIMAN-CAMERON ....J SCARGLE

**NCA 2-679 University of California - Santa Cruz 2684**  
 NON-LINER CALCULATIONS OF THE SOLAR NEBULA RESPONSE TO A PROTOPLANT  
*Period* *Obligations*  
 01/21/1992-02/28/1993 FY93: \$0 TOTAL: \$40,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 P BODENHEIMER ARC/J B POLLACK 11-Astronomy

**NCA 2-746 University of California - Santa Cruz 2685**  
 DYNAMICAL STUDIES OF THE OUTER SOLAR SYSTEM  
*Period* *Obligations*  
 08/12/1992-08/31/1992 FY93: \$40,000 TOTAL: \$80,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 P BODENHEIMER ARC/J N CUZZI 11-Astronomy

**NCA 2-750 University of California - Santa Cruz 2686**  
 GAS AND DISSIPATION IN ASTROPHYSICAL DISKS  
*Period* *Obligations*  
 09/09/1992-09/16/1994 FY93: \$5,000 TOTAL: \$40,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 L HERNQUIST ARC/B SMITH 11-Astronomy  
 T STEIMAN-CAMERON ....D HOLLENBACH

**NCA 2-777 University of California - Santa Cruz 2687**  
 IMAGE PROCESSING TECHNIQUES FOR LARGE FORMAT IR CAMERAS  
*Period* *Obligations*  
 02/04/1993-01/14/1994 FY93: \$40,000 TOTAL: \$40,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 D M RANK ARC/J D BREGMAN 11-Astronomy

**NCA 2-803 University of California - Santa Cruz 2688**  
 COMPOSITIONAL PROFILE OF THE GIANT PLANETS  
*Period* *Obligations*  
 04/02/1993-03/31/1994 FY93: \$22,990 TOTAL: \$22,990  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 P H BODENHEIMER ARC/J B POLLACK 11-Astronomy

**NCC 2-534 University of California - Santa Cruz 2689**  
 TOWARDS A SELF REPLICATING CHEMICAL SYSTEM BASED ON CYTIDYLIC AND GUANYLIC ACIDS  
*Period* *Obligations*  
 01/15/1988-01/14/1994 FY93: \$102,255 TOTAL: \$405,977  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 A KANAVARIOTI ARC/S CHANG 12-Chemistry  
 C F BERNASCONI

**NCC 2-649 University of California - Santa Cruz 2690**  
 THEORETICAL AND OBSERVATIONAL STUDIES OF STAR AND PLANET FORMATION AND PRECURSOR SCIENCE FOR SIRT  
*Period* *Obligations*  
 10/16/1989-12/31/1993 FY93: \$286,636 TOTAL: \$1,000,182  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 P H BODENHEIMER ARC/D J HOLLENBACH 11-Astronomy  
 ....M W WERNER

**NCC 2-717 University of California - Santa Cruz 2691**  
 VOLUME VISUALIZATION FOR COMPUTATIONAL FLUID DYNAMICS  
*Period* *Obligations*  
 06/05/1991-03/14/1994 FY93: \$50,000 TOTAL: \$210,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 J WILHELMS ARC/A VAZIRI 22-Computer Science  
 ....J HULQUIST

**NCC 2-744 University of California - Santa Cruz 2692**  
 DOES PLUTO HAVE A HAZE LAYER?  
*Period* *Obligations*  
 12/20/1991-11/30/1993 FY93: \$10,000 TOTAL: \$65,281  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 D M RANK ARC/E W DUNHAM 11-Astronomy

**NCC 2-763 University of California - Santa Cruz 2693**  
 DUAL ADAPTATIONS AND ADAPTIVE GENERALIZATION TO SENSORY REARRANGEMENT  
*Period* *Obligations*  
 06/02/1992-04/30/1993 FY93: \$0 TOTAL: \$17,440  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 B BRIDGEMAN ARC/C E WADE 69-Psych, NEC  
 ....R B WELCH

**NASA'S UNIVERSITY PROGRAM  
CALIFORNIA (Continued)**

**NCC 2-814 University of California - Santa Cruz 2694**  
VERIDICAL AND EFFICIENT PORTRAYAL OF DEPTH THROUGH M  
OTION ON FLAT DISPLAYS  
*Period* *Obligations*  
07/22/1993-03/31/1994 FY93: \$12,000 TOTAL: \$12,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
B BRIDGEMAN ARC/M K KAISER 69-Psych, NEC

**NGT 00-050-665 University of California - Santa Cruz 2695**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period* *Obligations*  
09/07/1990-08/31/1993 FY93: \$0 TOTAL: \$66,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
D LIN HQ/F C OWENS 11-Astronomy

**NGT 00-050-855 University of California - Santa Cruz 2696**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period* *Obligations*  
08/16/1991-08/31/1994 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
L HERNQUIST HQ/F C OWENS 11-Astronomy

**NGT 00-070-337 University of California - Santa Cruz 2697**  
NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
MINORITY FOCUS PROGRAM  
*Period* *Obligations*  
06/30/1993-06/30/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R HUGHEY HQ/D K RUSSELL 49-Engr, NEC

**NGT 00-090-178 University of California - Santa Cruz 2698**  
UNDERGRADUATE STUDENT RESEARCHERS PROGRAM  
*Period* *Obligations*  
08/27/1993-08/14/1994 FY93: \$12,000 TOTAL: \$12,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R E SLATER HQ/D K RUSSELL 99-Multi-Discip

**NGT 00-090-150 University of Redlands 2699**  
UNDERGRADUATE STUDENT RESEARCHERS PROGRAM  
*Period* *Obligations*  
11/16/1992-08/14/1993 FY93: \$12,000 TOTAL: \$12,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
L SANDLER HQ/D K RUSSELL 99-Multi-Discip

**NAG 8-168 University of San Francisco 2700**  
DATA ANALYSIS PLAN FOR LDEF EXPERIMENT  
*Period* *Obligations*  
07/26/1990-05/23/1994 FY93: \$19,005 TOTAL: \$297,693  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
E V BENTON MSFC/T A PARNELL 13-Physics

**NAG 8-282 University of San Francisco 2701**  
LDEF EXPERIMENT  
*Period* *Obligations*  
02/02/1993-02/01/1994 FY93: \$60,000 TOTAL: \$60,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
E V BENTON MSFC/T A PARNELL 13-Physics  
...../J W WATTS

**NAG 8-789 University of San Francisco 2702**  
RADIATION ENVIRONMENT FOR SPACE STATION  
*Period* *Obligations*  
08/24/1989-02/20/1993 FY93: \$20,000 TOTAL: \$136,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
E V BENTON MSFC/T A PARNELL 19-Phys Sci, NEC  
...../J W WATTS

**NAG 9-235 University of San Francisco 2703**  
HIGH-LET SPACE RADIATION DOSIMETRY/ASTRO  
*Period* *Obligations*  
06/01/1987-08/01/1994 FY93: \$190,000 TOTAL: \$1,187,200  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
E V BENTON JSC/D S NACHTWEY 13-Physics

**NAG 1-1096 University of Southern California 2704**  
CONTROL OF JET NOISE— FDP  
*Period* *Obligations*  
02/01/1990-06/30/1993 FY93: \$0 TOTAL: \$275,250  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
S SHRECK LARC/J M SEINER 41-Aero Engr  
...../M K PONTON

**NAG 2-146 University of Southern California 2705**  
PIONEER 10/11 DATA ANALYSIS OF THE ULTRAVIOLET  
PHOTOMETRY EXPERIMENT  
*Period* *Obligations*  
10/01/1981-01/31/1994 FY93: \$258,043 TOTAL: \$2,240,563  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
D JUDGE ARC/L E LASHER 13-Physics  
...../J R PHILLIPS

**NAG 2-864 University of Southern California 2706**  
COORDINATION OF EVOLVING CONVENTIONS ENABLING SHAR ING  
OF KNOWLEDGE  
*Period* *Obligations*  
08/06/1993-02/28/1994 FY93: \$505,458 TOTAL: \$505,458  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R NECHES ARC/P E FRIEDLAND 22-Computer Science

**NAG 3-1279 University of Southern California 2707**  
COMBINED BANDWIDTH-EFFICIENT MODULATION AND EQUALI  
ZATION  
*Period* *Obligations*  
05/15/1991-10/08/1992 FY93: \$0 TOTAL: \$60,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R M LEAHY LERC/E A BOBINSKY 45-Elec Engr  
...../M VANDERAAR

**NAG 3-1523 University of Southern California 2708**  
STUDIES OF PREMIXED LAMINAR AND TURBULENT FLAMES A T  
MICROGRAVITY  
*Period* *Obligations*  
09/09/1993-01/08/1994 FY93: \$56,000 TOTAL: \$56,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
P D RONNEY LERC/K J WEILAND 46-Mech Engr

**NASA'S UNIVERSITY PROGRAM  
CALIFORNIA (Continued)**

**NAG 5-1296 University of Southern California 2709**  
DETERMINATION OF THE EFFECTIVE TEMPERATURE SURFACE GRAVITIES

Period	Obligations	
09/15/1989-02/14/1994	FY93: \$49,800	TOTAL: \$200,830
Prin. Invest.	NASA Tech. Officer	CASE Category
G J PETERS	GSFC/D WEST	11-Astronomy

**NAGW 1924 University of Southern California 2716**  
PHOTON ABSORPTION AND EMISSION STUDIES OF ATMOSPHERIC GASES

Period	Obligations	
02/06/1990-09/30/1993	FY93: \$92,580	TOTAL: \$368,115
Prin. Invest.	NASA Tech. Officer	CASE Category
D L JUDGE	HQ/J BERGSTRAHL	11-Astronomy

**NAG 5-2219 University of Southern California 2710**  
IMPLEMENTATION OF HELIOSEISMIC DATA REDUCTION AND DIAGNOSTIC TECHNIQUES ON MASSIVELY PARALLEL ARCH...

Period	Obligations	
02/25/1993-11/30/1993	FY93: \$10,000	TOTAL: \$10,000
Prin. Invest.	NASA Tech. Officer	CASE Category
E RHODES	GSFC/J FISCHER	11-Astronomy

**NAGW 2235 University of Southern California 2717**  
NAGW-2235/UNIV. OF SOUTHERN CALIF @ LOS ANGELES/ BASIN SEDIMENT TRANSPORT ON MARS

Period	Obligations	
03/11/1991-12/31/1993	FY93: \$30,000	TOTAL: \$90,000
Prin. Invest.	NASA Tech. Officer	CASE Category
D S GORSLINE	HQ/T A MAXWELL	32-Geological Sci

**NAG 5-2292 University of Southern California 2711**  
A SURVEY OF EUV EMISSION IN NEARBY BE STARS

Period	Obligations	
06/11/1993-06/14/1994	FY93: \$31,244	TOTAL: \$31,244
Prin. Invest.	NASA Tech. Officer	CASE Category
G J PETERS	GSFC/R OLIVERSON	11-Astronomy

**NAGW 2354 University of Southern California 2718**  
A RARE GAS OPTICS-FREE ABSOLUTE PHOTON FLUX AND ENERGY ANALYZER FOR SOLAR AND PLANETARY OBSERVATION

Period	Obligations	
05/21/1991-12/31/1992	FY93: \$0	TOTAL: \$279,402
Prin. Invest.	NASA Tech. Officer	CASE Category
D L JUDGE	HQ/W L QUAIDE	19-Phys Sci, NEC

**NAG 5-2313 University of Southern California 2712**  
LONG-TERM FUV FLUX AND WIND VARIABILITY IN BE STARS AND MULTI-WAVELENGTH OBS. AT EQUATOR-ON . . . .

Period	Obligations	
07/12/1993-07/14/1994	FY93: \$25,000	TOTAL: \$25,000
Prin. Invest.	NASA Tech. Officer	CASE Category
G J PETERS	GSFC/R OLIVERSEN	11-Astronomy

**NAGW 2390 University of Southern California 2719**  
NAGW-2390/UNIV SOUTHERN CA/A PROPOSAL TO INVESTIGATE THE APPLICABILITY OF ACTS TECHNOLOGY TO SATELLITE

Period	Obligations	
05/07/1991-03/10/1992	FY93: \$4	TOTAL: \$49,742
Prin. Invest.	NASA Tech. Officer	CASE Category
R M GAGLIARDI	HQ/D A OLMSTEAD	99-Multi-Discip
J MUNUSHIAN		

**NAGW 13 University of Southern California 2713**  
THREE DIMENSIONAL OBSERVATIONAL STUDY OF SOLAR 5 MINUTE OSCILLATIONS

Period	Obligations	
01/01/1980-02/28/1994	FY93: \$183,000	TOTAL: \$1,983,746
Prin. Invest.	NASA Tech. Officer	CASE Category
E J RHODES	HQ/J D BOHLIN	13-Physics
	..../S KANE	

**NAGW 2558 University of Southern California 2720**  
NAGW-2558/UNIV SOUTHERN CA @ LOS ANGELES/BIO-OPTIC AL INTERPRETATION OF OCEAN COLOR IMAGERY

Period	Obligations	
06/13/1991-12/31/1992	FY93: \$0	TOTAL: \$244,943
Prin. Invest.	NASA Tech. Officer	CASE Category
D A KIEFER	HQ/B G MITCHELL	32-Geological Sci
	..../D E WICKLAND	

**NAGW 163 University of Southern California 2714**  
3 MONTH NCE UNDER NEW CLAUSE

Period	Obligations	
04/01/1981-10/31/1993	FY93: \$4,365	TOTAL: \$617,946
Prin. Invest.	NASA Tech. Officer	CASE Category
D L JUDGE	HQ/K FOX	31-Atmos Sci
L BROADFOOT	..../W L QUAIDE	
J KUNC		

**NAGW 2677 University of Southern California 2721**  
A RARE GAS OPTIC-FREE ABSOLUTE PHOTON FLUX

Period	Obligations	
08/20/1991-05/31/1994	FY93: \$44,433	TOTAL: \$244,469
Prin. Invest.	NASA Tech. Officer	CASE Category
D L JUDGE	HQ/W V JONES	13-Physics
	..../J C LING	

**NAGW 1061 University of Southern California 2715**  
GRADUATE RESEARCH AND TRAINING IN HYPERSONICS

Period	Obligations	
03/15/1987-10/31/1993	FY93: \$0	TOTAL: \$1,004,998
Prin. Invest.	NASA Tech. Officer	CASE Category
R E KAPLAN	HQ/S M WANDER	19-Phys Sci, NEC
	..../R A GRAVES	

**NAGW 2830 University of Southern California 2722**  
OUTER PLANETS UPPER ATMOSPHERE/MAGNETOSPHERE RESEARCH

Period	Obligations	
01/17/1992-12/31/1992	FY93: \$0	TOTAL: \$60,000
Prin. Invest.	NASA Tech. Officer	CASE Category
SHEMANSKY	HQ/H BRINTON	31-Atmos Sci

**NASA'S UNIVERSITY PROGRAM  
CALIFORNIA (Continued)**

**NAGW 2834 University of Southern California 2723**  
NAGW-2834/UNIV SOUTHERN CA/A STUDY OF THE IO TORUS  
*Period Obligations*  
01/17/1992-06/30/1993 FY93: \$60,000 TOTAL: \$120,001  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D E SHEMANSKY HQ/W L QUAIDE 11-Astronomy

**NAGW 2902 University of Southern California 2724**  
GEOLOGICAL MAPPING OF ARGYE PLANITIA  
*Period Obligations*  
02/10/1992-06/30/1993 FY93: \$0 TOTAL: \$10,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D S GORSLINE HQ/J M BOYCE 32-Geological Sci

**NAGW 3002 University of Southern California 2725**  
ANALYSIS OF VOYAGER EUV OBSERVATIONS OF NEPTUNE AND TRITON  
*Period Obligations*  
03/23/1992-06/30/1994 FY93: \$43,300 TOTAL: \$93,300  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D E SHEMANSKY HQ/H C BRINTON 19-Phys Sci, NEC

**NAGW 3063 University of Southern California 2726**  
A HIGHLY STABLE SEMICONDUCTOR DIODE SPECTROMETER FOR SOLAR SYSTEM INVESTIGATIONS  
*Period Obligations*  
04/28/1992-01/31/1994 FY93: \$95,727 TOTAL: \$188,038  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D L JUDGE HQ/W J WAGNER 31-Atmos Sci  
....J D BOHLIN

**NAGW 3149 University of Southern California 2727**  
GLOBAL CLIMATOLOGY  
*Period Obligations*  
07/24/1992-04/30/1994 FY93: \$90,305 TOTAL: \$148,995  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R C DUGDALE HQ/R E MURPHY 33-Oceanography  
F P WILKERSON ....J A KAYE

**NAGW 3378 University of Southern California 2728**  
GROUND BASED STUDIES OF THERMOCAPILLARY FLOWS IN LEVITATED DROPS  
*Period Obligations*  
02/24/1993-03/31/1994 FY93: \$70,000 TOTAL: \$70,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
S S SADHAL HQ/B C CARPENTER 46-Mech Engr

**NAGW 3520 University of Southern California 2729**  
DEVELOPMENT OF A NEW TYPE OF EUV/UV FILTER FOR PLANETARY MAGNETOSPHERE IMAGING IN ENA FLUXES  
*Period Obligations*  
04/30/1993-04/30/1994 FY93: \$54,263 TOTAL: \$54,263  
*Prin. Invest. NASA Tech. Officer CASE Category*  
M GRUNTMAN HQ/E C WHIPPLE 11-Astronomy  
....J D BOHLIN

**NAGW 3547 University of Southern California 2730**  
QUANTITATIVE CHARACTERIZATION OF THE SMALL SCALE FRACTURE PATTERNS  
*Period Obligations*  
04/23/1993-03/14/1994 FY93: \$60,000 TOTAL: \$60,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
C G SAMMIS HQ/J T BERGSTRALH 32-Geological Sci

**NAGW 3574 University of Southern California 2731**  
ANALYSIS OF PHOTOSYNTHETIC RATE AND BIO-OPTICAL COMPONENTS FROM OCEAN COLOR IMAGERY  
*Period Obligations*  
05/30/1993-12/31/1993 FY93: \$110,553 TOTAL: \$110,553  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D A KIEFER HQ/D E WICKLAND 33-Oceanography  
....A C JANETOS

**NAGW 3762 University of Southern California 2732**  
APPLICATION OF DIGITAL ELEVATION AND REMOTELY SENSED DATA TO NEOTECTONICS  
*Period Obligations*  
09/23/1993-06/30/1994 FY93: \$43,666 TOTAL: \$43,666  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D BURBANK HQ/M BALTUCK 32-Geological Sci  
E PAYLOR

**NASW 4680 University of Southern California 2733**  
NASW-4680/UNIV SOUTHERN CA/NASA RTTC LOCATED IN THE FAR WEST REGION OF THE U.S.  
*Period Obligations*  
12/20/1991-12/31/1993 FY93: \$1,290,000 TOTAL: \$2,040,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R STARK HQ/F E PENARANDA 99-Multi-Discip

**NCC 2-538 University of Southern California 2734**  
RESEARCH ON SOAR  
*Period Obligations*  
01/01/1988-12/31/1993 FY93: \$90,780 TOTAL: \$482,542  
*Prin. Invest. NASA Tech. Officer CASE Category*  
P ROSENBLUM ARC/P FRIEDLAND 22-Computer Science  
....P D LAIRD

**NCC 2-539 University of Southern California 2735**  
CENTER FOR EXPERIMENTAL RESEARCH IN PARALLEL ALGORITHMS, SOFTWARE, AND SYSTEMS  
*Period Obligations*  
05/01/1988-05/31/1994 FY93: \$1,064,664 TOTAL: \$5,316,893  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D W MIZELL ARC/H LUM 22-Computer Science  
....D B MCKELLAR

**NCC 2-719 University of Southern California 2736**  
TASK ON MANAGEMENT OF KNOWLEDGE REPRESENTATION STANDARDS  
*Period Obligations*  
06/12/1991-05/31/1993 FY93: \$0 TOTAL: \$194,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R NECHES ARC/P E FRIEDLAND 22-Computer Science

# **NASA'S UNIVERSITY PROGRAM CALIFORNIA (Continued)**

**NCC 2-812 University of Southern California 2737**  
EVALUATION OF THE EFFECTS OF CREW RESOURCE MANAGEM  
ENT TRAINING IN AIRLINE MAINTENANCE  
*Period* *Obligations*  
07/16/1993-06/30/1994 FY93: \$69,977 TOTAL: \$69,977  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J C TAYLOR ARC/B G KANKI 62-Social Aspects  
...../J M ORASANU

**NGT 00-030-108 University of Southern California 2738**  
NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period* *Obligations*  
10/21/1992-08/31/1994 FY93: \$44,000 TOTAL: \$44,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R M KUDELA HQ/G ASRAR 33-Oceanography  
...../D M BUTLER

**NGT 00-030-180 University of Southern California 2739**  
NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period* *Obligations*  
08/25/1993-08/31/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
T DICKEY HQ/G ASRAR 99-Multi-Discip  
...../D M BUTLER

**NGT 00-070-290 University of Southern California 2740**  
NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
MINORITY FOCUS PROGRAM  
*Period* *Obligations*  
08/14/1992-08/31/1994 FY93: \$22,000 TOTAL: \$44,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
G A BEKEY GSFC/H ASKHENES 22-Computer Science

**NGT 00-090-142 University of Southern California 2741**  
UNDERGRADUATE STUDENT RESEARCHERS PROGRAM (UMF)  
*Period* *Obligations*  
11/02/1992-08/14/1994 FY93: \$24,000 TOTAL: \$24,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
L YATES HQ/D K RUSSELL 99-Multi-Discip

**NGT 00-090-171 University of Southern California 2742**  
UNDERGRADUATE STUDENT RESEARCHERS PROGRAM  
*Period* *Obligations*  
08/27/1993-08/14/1994 FY93: \$12,000 TOTAL: \$12,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
L YATES HQ/D K RUSSELL 99-Multi-Discip

**NSG-5108 University of Southern California 2743**  
ROCKET EXPERIMENTS TO MEASURE THE SOLAR SPECTRAL  
PROFILE AND INTENSITY  
*Period* *Obligations*  
04/01/1976-10/31/1993 FY93: \$175,887 TOTAL: \$2,267,642  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
D L JUDGE GSFC/L J EARLY 13-Physics  
H S OGAWA ...../R H PLESS

**NSG-5422 University of Southern California 2744**  
A COMPARATIVE STUDY OF THE LAR ULTRAVIOLET SPECTRA OF  
BE STARS  
*Period* *Obligations*  
10/15/1979-01/31/1994 FY93: \$5,940 TOTAL: \$343,680  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
G J PETERS GSFC/D WEST 11-Astronomy  
R S POLIDAN  
J R PERCY

## **COLORADO**

**NAG 1-1475 Colorado School of Mines 2745**  
APPLICATIONS OF ELECTRONIC STRUCTURE THEORY TO THE  
DESIGN OF NI BASED SUPERALLOYS  
*Period* *Obligations*  
01/12/1993-01/07/1994 FY93: \$40,000 TOTAL: \$40,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
M E EBERHART LARC/R A OUTLAW 47-Materials Engr  
...../W E MEADOR

**NAG 2-849 Colorado School of Mines 2746**  
APPLICATIONS OF ELECTRONIC STRUCTURE THEORY TO THE  
DESING OF HIGH TEMPERATURE MATERIALS  
*Period* *Obligations*  
06/17/1993-06/30/1994 FY93: \$104,516 TOTAL: \$104,516  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
M EBERHART ARC/S R LANGHOFF 13-Physics

**NAG 3-1409 Colorado School of Mines 2747**  
THE EFFECTS OF MICROGRAVITY ON VAPOR PHASE SINTERI NG  
*Period* *Obligations*  
01/05/1993-12/17/1993 FY93: \$125,591 TOTAL: \$125,591  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
D READY LERC/T K GLASGOW 47-Materials Engr  
...../R ASTHANA

**NCC 3-215 Colorado School of Mines 2748**  
A FUNDAMENTAL STUDY OF THE COMBUSTION SYNTHESIS OF  
CERAMIC-METAL COMPOSITE MATS UNDER MICROGRAV COND  
*Period* *Obligations*  
05/09/1991-07/31/1994 FY93: \$119,000 TOTAL: \$307,969  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J J MOORE LERC/T K GLASGOW 47-Materials Engr  
D G WIRTH  
J B HOLT

**NCC 3-289 Colorado School of Mines 2749**  
THE SYNERGISTIC EFFECT OF CERAMIC MATERIALS SYNTHESIS  
USING VAPRO-ENHANCED REACT SINT UNDER MICROGR  
*Period* *Obligations*  
01/06/1993-12/31/1993 FY93: \$125,000 TOTAL: \$125,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J J MOORE LERC/E S NELSON 47-Materials Engr  
...../T GLASGOW

**NAG 1-1137 Colorado State University 2750**  
THE DIURNAL AND SEASONAL RESPONSE OF BOUNDARY- LAYER  
CLOUDS TO SOLAR WARMING  
*Period* *Obligations*  
05/23/1990-11/30/1993 FY93: \$38,000 TOTAL: \$208,001  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
D A RANDALL LARC/T OWENS 31-Atmos Sci  
...../T L OWENS

**NASA'S UNIVERSITY PROGRAM**  
**COLORADO (Continued)**

**NAG 1-1146 Colorado State University 2751**  
OBSERVATIONS OF UPPER AND MIDDLE TROPOSPHERIC CLOUDS.  
*Period Obligations*  
05/29/1990-11/30/1993 FY93: \$145,000 TOTAL: \$676,348  
*Prin. Invest. NASA Tech. Officer CASE Category*  
S K COX LARC/T OWENS 31-Atmos Sci  
J M DAVIS ....T L OWENS

**NAG 1-1266 Colorado State University 2752**  
AN INTERDISCIPLINARY SCIENCE INVESTIGATION OF CLOUDS AND THE EARTH'S RADIANT ENERGY SYSTEM-CERES  
*Period Obligations*  
05/06/1991-05/02/1993 FY93: \$150,000 TOTAL: \$257,774  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D A RANDALL LARC/B A WIELICKI 31-Atmos Sci  
....J W YOUNGBLOOD

**NAG 1-1461 Colorado State University 2753**  
REUSE METRICS FOR OBJECT ORIENTED SOFTWARE NLPN 92-821  
*Period Obligations*  
12/04/1992-12/01/1993 FY93: \$44,997 TOTAL: \$44,997  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J M BIEMAN LARC/K A SMITH 22-Computer Science  
....W H BRYANT

**NAG 3-776 Colorado State University 2754**  
SPACE PLASMA CONTRACTOR RESEARCH  
*Period Obligations*  
01/20/1987-05/31/1994 FY93: \$80,967 TOTAL: \$623,467  
*Prin. Invest. NASA Tech. Officer CASE Category*  
P J WILBUR LERC/J C KOLECKI 42-Astro Engr  
J E CARON ....C K PURVIS

**NAG 3-1206 Colorado State University 2755**  
ADVANCED ELECTRIC PROPULSION RESEARCH  
*Period Obligations*  
01/03/1991-12/29/1993 FY93: \$22,542 TOTAL: \$122,822  
*Prin. Invest. NASA Tech. Officer CASE Category*  
P J WILBUR LERC/V K RAWLIN 13-Physics

**NAG 3-1520 Colorado State University 2756**  
DISCRETE-LAYER PIEZOELECTRIC PLATE AND SHELL MODELS FOR ACTIVE TIP-CLEARANCE CONTROL  
*Period Obligations*  
08/31/1993-02/24/1994 FY93: \$30,008 TOTAL: \$30,008  
*Prin. Invest. NASA Tech. Officer CASE Category*  
P R HEYLIGER LERC/D A HOPKINS 46-Mech Engr  
....J M PEREIRA

**NAG 5-1058 Colorado State University 2757**  
HYDROLOGICAL CLOUD STUDIES  
*Period Obligations*  
07/15/1988-08/31/1994 FY93: \$80,000 TOTAL: \$500,806  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D RANDALL GSFC/W WISCOMBE 31-Atmos Sci

**NAG 5-1592 Colorado State University 2758**  
RESEARCH IN SUPPORT OF A MICROWAVE PRECIPITATION RETRIEVAL ALGORITHM FOR TRMM  
*Period Obligations*  
05/20/1991-05/31/1994 FY93: \$100,000 TOTAL: \$306,434  
*Prin. Invest. NASA Tech. Officer CASE Category*  
G L STEPHENS GSFC/R ADLER 31-Atmos Sci

**NAG 5-1653 Colorado State University 2759**  
WATER AND CLIMATE  
*Period Obligations*  
06/24/1991-06/30/1994 FY93: \$80,000 TOTAL: \$205,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D RANDALL GSFC/D STARR 31-Atmos Sci

**NAG 5-2078 Colorado State University 2760**  
NUMERICAL MODEL ESTIMATION OF AREA AVERAGED SURFACE FLUXES DURING FIFE  
*Period Obligations*  
08/25/1992-08/31/1994 FY93: \$155,000 TOTAL: \$310,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R A PIELKE GSFC/F G HALL 39-Env Sci, NEC  
T J LEE ....P SELLERS

**NAG 5-2302 Colorado State University 2761**  
MODELING BIOSPHERE-ATMOSPHERE INTERACTIONS AT VARIOUS SCALES IN SUPPORT OF BOREAS  
*Period Obligations*  
06/30/1993-06/30/1994 FY93: \$15,000 TOTAL: \$15,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R A PIELKE GSFC/F G HALL 39-Env Sci, NEC  
....P SELLERS

**NAG 8-890 Colorado State University 2762**  
MICROWAVE RADIATIVE TRANSFER STUDIES OF PRECIPITATION  
*Period Obligations*  
09/06/1991-09/17/1994 FY93: \$184,500 TOTAL: \$285,575  
*Prin. Invest. NASA Tech. Officer CASE Category*  
V N BRINGI MSFC/R E HOOD 31-Atmos Sci  
J VIVEKANANDAN

**NAG 8-981 Colorado State University 2763**  
WATER VAPOR STUDY OVER THE GLOBAL OCEANS IN COMPARISON WITH CLIMATE MODEL SIMULATIONS  
*Period Obligations*  
08/04/1993-07/01/1994 FY93: \$82,000 TOTAL: \$82,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
G L STEPHENS MSFC/F R ROBERTSON 31-Atmos Sci

**NAG 9-10 Colorado State University 2764**  
LIFE SPANS SKIN FIBROBLASTS  
*Period Obligations*  
06/16/1980-07/01/1993 FY93: \$0 TOTAL: \$752,450  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J LETT JSC/D R MORRISON 56-Medical Sciences  
A B COX  
A C LEE

**NAG 9-576 Colorado State University 2765**  
CHEMICAL STUDIES OF LUNAR SIMULANTS AND REGOLITH AS PLANT GROWTH MEDIA  
*Period Obligations*  
03/23/1992-01/01/1994 FY93: \$30,000 TOTAL: \$79,304  
*Prin. Invest. NASA Tech. Officer CASE Category*  
W L LINDSAY JSC/D L HENNINGER 55-Agriculture Sci

**NASA'S UNIVERSITY PROGRAM**  
**COLORADO (Continued)**

**NAG 9-583 Colorado State University 2766**  
 RADIOBIOLOGICAL STUDIES  
*Period Obligations*  
 05/22/1992-07/01/1994 FY93: \$90,000 TOTAL: \$170,750  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J METT JSC/D MORRISON 56-Medical Sciences

**NAS 3-26410 Colorado State University 2774**  
 ACTS PROPAGATION EXPERIMENTS  
*Period Obligations*  
 05/19/1993-08/31/1995 FY93: \$105,000 TOTAL: \$105,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 V N BRINGI LERC/R J GUNDERMAN 41-Aero Engr

**NAGW 1828 Colorado State University 2767**  
 REGIONAL MODELING OF TRACE GAS PRODUCTION IN GRASSLAND AND  
*Period Obligations*  
 09/15/1989-06/30/1993 FY93: \$0 TOTAL: \$700,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D S SCHIMEL HQ/D E WICKLAND 39-Env Sci, NEC  
 ....R E MURPHY

**NAS 5-31730 Colorado State University 2775**  
 EOS - BIOSPHERE - ATMOSPHERE INTERACTION STUDY  
*Period Obligations*  
 10/18/1991-12/31/1999 FY93: \$157,500 TOTAL: \$398,500  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D RANDALL GSFC/P SELLERS 31-Atmos Sci

**NAGW 1829 Colorado State University 2768**  
 MODELING GLOBAL METHANE EMISSION FROM LIVESTOCK  
*Period Obligations*  
 09/14/1989-12/31/1992 FY93: \$0 TOTAL: \$329,998  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D E JOHNSON HQ/M J PRATHER 31-Atmos Sci  
 ....R T WATSON

**NAS 9-18735 Colorado State University 2776**  
 SPACELAB LIFE SCIENCES (SLS-2) MISSION SUPPORT  
*Period Obligations*  
 06/24/1992-10/17/1993 FY93: \$22,642 TOTAL: \$238,372  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M J FETTMAN JSC/K NEWKIRK 59-Life Sci, NEC

**NAGW 2069 Colorado State University 2769**  
 INFLATABLE STRUCTURES FOR A LUNAR BASE  
*Period Obligations*  
 04/27/1990-11/30/1993 FY93: \$120,000 TOTAL: \$337,702  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M E CRISWELL HQ/G I JOHNSTON 46-Mech Engr  
 P S NOWAK

**NCC 2-728 Colorado State University 2777**  
 FLUID MANAGEMENT REQUIREMENTS IN A PLANT GROWTH CHAMBER  
*Period Obligations*  
 10/28/1991-05/31/1993 FY93: \$70,000 TOTAL: \$134,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 W Z SADEH ARC/R D MACELROY 51-Biological Sci  
 D A FESTER

**NAGW 2197 Colorado State University 2770**  
 NAGW-2197/COLORADO STATE UNIV/EFFECTS OF SPACEFLIGHT-INDUCED STRESS ON IMMUNE FUNCTION  
*Period Obligations*  
 07/23/1990-04/30/1992 FY93: \$0 TOTAL: \$30,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 G R COWLTER HQ/V H STOKLOSA 51-Biological Sci

**NGT 00-030-046 Colorado State University 2778**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
 09/06/1991-08/31/1994 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 T J GREENWALD HQ/D M BUTLER 31-Atmos Sci  
 G L STEPHENS ....G S WILSON

**NAGW 2662 Colorado State University 2771**  
 USING MULTI-SENSOR DATA TO MODEL FACTORS LIMITING CARBON BALANCE IN GLOBAL ARID AND SEMIARID LANDS  
*Period Obligations*  
 08/22/1991-03/31/1994 FY93: \$340,000 TOTAL: \$1,655,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D S SCHIMEL HQ/R E MURPHY 39-Env Sci, NEC  
 ....W S WILSON

**NGT 00-030-064 Colorado State University 2779**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
 08/30/1991-08/31/1994 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 C W LANDSEA HQ/D M BUTLER 31-Atmos Sci  
 W M GRAY ....G S WILSON

**NAGW 2700 Colorado State University 2772**  
 NAGW-2700/COLORADO STATE UNIV/GLOBAL ANALYSIS OF THE EARTH ENERGY BUDGET AND WATER CYCLE USING SATELLITE  
*Period Obligations*  
 09/16/1991-05/31/1993 FY93: \$140,000 TOTAL: \$275,550  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 T H HAAR HQ/J C DODGE 31-Atmos Sci  
 ....A J TUYAHOV

**NGT 00-030-099 Colorado State University 2780**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
 10/21/1992-08/31/1994 FY93: \$44,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 C A DEMOTT HQ/G ASRAR 32-Geological Sci  
 ....J S THEON

**NAS 1-19951 Colorado State University 2773**  
 SCIENCE SUPPORT TO THE LITE SCIENCE TEAM  
*Period Obligations*  
 07/20/1993-07/19/1995 FY93: \$25,000 TOTAL: \$25,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D RANDALL LARC/G L MADDREA 31-Atmos Sci

**NGT 00-030-106 Colorado State University 2781**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
 10/21/1992-08/31/1994 FY93: \$44,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 T L JENSEN HQ/G ASRAR 32-Geological Sci  
 ....D M BUTLER

# **NASA'S UNIVERSITY PROGRAM** **COLORADO (Continued)**

**NGT 00-030-144 Colorado State University 2782**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
 11/02/1992-08/31/1994 FY93: \$44,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 V B BROWN HQ/G ASRAR 39-Env Sci, NEC  
 ....D M BUTLER

**NGT 00-030-147 Colorado State University 2783**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
 10/21/1992-08/31/1994 FY93: \$44,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J A KNAFF HQ/G ASRAR 31-Atmos Sci  
 ....D M BUTLER

**NGT 00-030-150 Colorado State University 2784**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
 10/21/1992-08/31/1994 FY93: \$44,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A S DENNING HQ/G ASRAR 32-Geological Sci  
 ....D M BUTLER

**NGT 00-030-190 Colorado State University 2785**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
 08/25/1993-08/31/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R H JOHNSON HQ/G ASRAR 99-Multi-Discip  
 ....D M BUTLER

**NGT 00-050-848 Colorado State University 2786**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 06/25/1991-06/30/1994 FY93: \$21,240 TOTAL: \$62,892  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M THOMPSON HQ/F C OWENS 45-Elec Engr

**NGT 00-050-929 Colorado State University 2787**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 05/29/1992-06/30/1994 FY93: \$22,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 W Z SADEH HQ/J K ALEXANDER 44-Civil Engr

**NGT 00-051-146 Colorado State University 2788**  
 GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 07/28/1993-08/31/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R GOTSHALL HQ/R WHITE 55-Agriculture Sci  
 A TUCKER

**NAG 9-612 Univ. of Colorado Health Science Center 2789**  
 ROLE OF PERIPHERAL BLOOD MONOCYTES IN MEDIATING AND  
 CELL HYPORESPONSIVENESS DURING HUMAN STRESS  
*Period Obligations*  
 06/15/1992-05/01/1994 FY93: \$62,055 TOTAL: \$126,080  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R T MEEHAN JSC/C F SAMS 56-Medical Sciences  
 ....H LANE

**NAG 1-756 University of Colorado - Boulder 2790**  
 COMPUTATIONAL METHODS AND SOFTWARE SYSTEMS FOR  
 DYNAMICS AND CONTROL OF LARGE SPACE STRUCTURES  
*Period Obligations*  
 04/10/1987-02/28/1993 FY93: \$8,384 TOTAL: \$896,359  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 K C PARK LARC/G L GILES 46-Mech Engr  
 C A FELIPPA ....W J STROUD

**NAG 1-998 University of Colorado - Boulder 2791**  
 GLOBAL SURFACE-BASED CLOUD OBSERVATIONS FOR ISCCP  
*Period Obligations*  
 05/25/1989-12/31/1993 FY93: \$75,000 TOTAL: \$381,508  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J LONDON LARC/T OWENS 31-Atmos Sci  
 S G WARREN ....T L OWENS

**NAG 1-1103 University of Colorado - Boulder 2792**  
 NUMERICAL SIMULATION OF STABILITY AND STABILITY CONTROL  
 IN COMPRESSIBLE COUETTE FLOW  
*Period Obligations*  
 02/22/1990-02/12/1993 FY93: \$1 TOTAL: \$110,001  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S BIRONGEN LARC/W E ZORUMSKI 41-Aero Engr  
 ....T L PARROTT

**NAG 1-1161 University of Colorado - Boulder 2793**  
 A NUMERICAL INVESTIGATION OF ROUGHNESS EFFECTS ON  
 BOUNDARY LAYER TRANSITION.  
*Period Obligations*  
 07/05/1990-05/31/1994 FY93: \$35,000 TOTAL: \$163,300  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S BIRINGEN LARC/C L STREETT 41-Aero Engr  
 ....A KUMAR

**NAG 1-1200 University of Colorado - Boulder 2794**  
 COMPUTATIONAL METHODS FOR CONTROL-STRUCTURE INTER-  
 ACTION ANALYSIS  
*Period Obligations*  
 11/29/1990-03/31/1994 FY93: \$19,001 TOTAL: \$179,232  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 K C PARK LARC/W K BELVIN 49-Engr, NEC  
 C A FELIPPA

**NAG 1-1295 University of Colorado - Boulder 2795**  
 MISSION ANALYSIS OF WAVERIDER DESIGNS INCREMENTALLY  
 FUNDED THROUGH 12/31/91  
*Period Obligations*  
 06/28/1991-06/30/1993 FY93: \$1 TOTAL: \$50,001  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A R SEEBASS LARC/W J SMALL 41-Aero Engr  
 F C DOUGHERTY ....D C MARCUM

**NAG 1-1355 University of Colorado - Boulder 2796**  
 OBSERVATIONAL AND MODELING STUDIES OF RADIATIVE CH  
 EMICAL AND DYNAMICAL INTERACTIONS IN THE EARTH AT  
*Period Obligations*  
 12/18/1991-12/12/1994 FY93: \$152,900 TOTAL: \$335,700  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M L SALBY LARC/W L GROSE 31-Atmos Sci  
 ....E E REMSBERG



**NASA'S UNIVERSITY PROGRAM  
COLORADO (Continued)**

**NAG 1-1390 University of Colorado - Boulder 2797**  
CHARACTERIZATION OF LAMINATED COMPOSITE TUBES USING  
ULTRASONIC GUIDED WAVES  
*Period* *Obligations*  
02/13/1992-01/22/1994 FY93: \$25,001 TOTAL: \$50,001  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
W P RODGERS LARC/W H PROSSER 46-Mech Engr

**NAG 1-1506 University of Colorado - Boulder 2804**  
SCIENTIFIC POTENTIAL OF SIMULTANEOUS TOPEX FOLLOW-ON AND  
GEOSAT FOLLOW-ON MISSIONS  
*Period* *Obligations*  
04/22/1993-10/31/1993 FY93: \$25,000 TOTAL: \$25,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
G H BORN LARC/S J KATZBERG 33-Oceanography  
J W JOHNSON ....J W JOHNSON

**NAG 1-1391 University of Colorado - Boulder 2798**  
HIGH PERFORMANCE SUBSTRUCTURING ALGORITHMS FOR  
MASSIVELY PARALLEL ARCHITECTURES  
*Period* *Obligations*  
02/13/1992-01/19/1994 FY93: \$79,498 TOTAL: \$139,498  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
C FARHAT LARC/R E GILLIAN 46-Mech Engr  
....J M HOUSNER

**NAG 2-504 University of Colorado - Boulder 2805**  
PIONEER VENUS ORBITER ULTRAVIOLET SPECTROMETER  
OPERATIONS AND DATA ANALYSIS  
*Period* *Obligations*  
10/01/1987-12/31/1993 FY93: \$265,182 TOTAL: \$1,505,842  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
A I STEWART ARC/L E LASHER 11-Astronomy  
....R O FIMMEL

**NAG 1-1440 University of Colorado - Boulder 2799**  
HF RADAR GROUND TRUTH SUPPORT OF UARS WIND  
MEASUREMENTS IN HAWAII  
*Period* *Obligations*  
05/21/1992-06/30/1994 FY93: \$57,000 TOTAL: \$112,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
D C FRITTS LARC/J G WELLS 31-Atmos Sci

**NAG 2-753 University of Colorado - Boulder 2806**  
AIRBORNE ASTRONOMY WITH 100UM-400UM HETERODYNE SPEC  
TROMETER  
*Period* *Obligations*  
01/29/1992-09/30/1994 FY93: \$200,000 TOTAL: \$612,500  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
A L BETZ ARC/C D LAUGHLIN 11-Astronomy  
....C M GILLESPIE JR.

**NAG 1-1472 University of Colorado - Boulder 2800**  
NUMERICAL SIMULATION OF SHOCK TURBULENT BOUNDARY  
LAYER INTERACTION  
*Period* *Obligations*  
12/30/1992-02/14/1994 FY93: \$60,000 TOTAL: \$60,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
S BIRINGEN LARC/W E ZORUMSKI 41-Aero Engr

**NAG 2-760 University of Colorado - Boulder 2807**  
HETEROGENEOUS CHEMISTRY RELATED TO STRATOSPHERIC A  
IRCRAFT: MICROPHYSICAL AND CHEMICAL PROPERTIES...  
*Period* *Obligations*  
02/24/1992-02/28/1994 FY93: \$122,227 TOTAL: \$247,227  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
M A TOLBERT ARC/E CONDON 31-Atmos Sci  
....O B TOON

**NAG 1-1483 University of Colorado - Boulder 2801**  
CONCEPTUAL DESIGN AND ANALYSIS OF BATTEN ACTUATED  
DEPLOYABLE TRUSSES  
*Period* *Obligations*  
02/25/1993-02/24/1994 FY93: \$52,859 TOTAL: \$52,859  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
M M MIKULAS LARC/H G BUSH 46-Mech Engr  
K C PARK

**NAG 2-761 University of Colorado - Boulder 2808**  
ANALYTICAL ELECTRON MICROSCOPIC ANALYSIS OF SUBMICRON  
AEROSOL PARTICLES  
*Period* *Obligations*  
02/24/1992-03/31/1994 FY93: \$49,000 TOTAL: \$64,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
P J SHERIDAN ARC/E CONDON 31-Atmos Sci  
....O B TOON

**NAG 1-1490 University of Colorado - Boulder 2802**  
EXPERIMENTAL ADAPTIVE CONTROL OF SELF-ACTUATED  
PRECISION DEPLOYABLE SPACE STRUCTURES  
*Period* *Obligations*  
02/25/1993-02/24/1994 FY93: \$106,924 TOTAL: \$106,924  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
L D PETERSON LARC/H G BUSH 46-Mech Engr  
K C PARK

**NAG 2-827 University of Colorado - Boulder 2809**  
MASSIVELY PARALLEL AND SCALABLE IMPLICIT TIME INTEGRATION  
ALGORITHMS FOR STRUCTURAL DYNAMICS  
*Period* *Obligations*  
03/24/1993-12/31/1993 FY93: \$65,000 TOTAL: \$65,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
C FARHAT ARC/T A LASINSKI 41-Aero Engr  
....E BARSZCZ

**NAG 1-1491 University of Colorado - Boulder 2803**  
IONOSPHERIC CALIBRATION FOR SINGLE FREQUENCY ALTIMETER  
MEASUREMENTS  
*Period* *Obligations*  
02/25/1993-02/28/1994 FY93: \$25,000 TOTAL: \$25,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
G H BORN LARC/S J KZETZBERG 33-Oceanography  
W SCHREINER ....J W JOHNSON

**NAG 2-861 University of Colorado - Boulder 2810**  
VENUS COMPOSITION PROBE DISCOVERY MISSION  
*Period* *Obligations*  
07/28/1993-06/30/1994 FY93: \$95,000 TOTAL: \$95,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
L W ESPOSITO ARC/L E LASHER 11-Astronomy  
....G S HUBBARD

**NASA'S UNIVERSITY PROGRAM  
COLORADO (Continued)**

**NAG 2-862 University of Colorado - Boulder 2811**  
A TOOLKIT FOR ACTIVE OBJECT-ORIENTED DATABASES WITH APPLICATION TO INTEROPERABILITY

Period	Obligations	
07/29/1993-08/31/1994	FY93: \$218,704	TOTAL: \$218,704
Prin. Invest.	NASA Tech. Officer	CASE Category
R KING	ARC/P E FRIEDLAND	22-Computer Science

**NAG 3-1278 University of Colorado - Boulder 2818**  
MODELING AND EXPERIMENTAL STUDIES OF DROPLET PUSHING IN MISCIBILITY-GAP ALLOY SOLIDIFY UNDER LOW-G CONDITIONS

Period	Obligations	
05/21/1991-07/14/1994	FY93: \$0	TOTAL: \$100,000
Prin. Invest.	NASA Tech. Officer	CASE Category
W B KRANTZ	LERC/T K GLASGOW	47-Materials Engr

**NAG 3-934 University of Colorado - Boulder 2812**  
COUPLED STRUCTURAL, THERMAL, PHASE-CHANGE AND ELECTROMAGNETIC ANALYSIS FOR SUPERCONDUCTORS

Period	Obligations	
09/27/1988-03/31/1993	FY93: \$0	TOTAL: \$220,000
Prin. Invest.	NASA Tech. Officer	CASE Category
C A FELIPPA	LERC/C C CHAMIS	41-Aero Engr
K C PARK	....D A HOPKINS	

**NAG 3-1383 University of Colorado - Boulder 2819**  
SATELLITE COMMUNICATIONS APPLICATIONS RESEARCH (SCAR) MODELING AND EXPERIMENTS PROJECT

Period	Obligations	
12/14/1992-12/14/1993	FY93: \$73,440	TOTAL: \$73,440
Prin. Invest.	NASA Tech. Officer	CASE Category
J N PELTON	LERC/E A BOBINSKY	45-Elec Engr
	....J R RAMLER	

**NAG 3-993 University of Colorado - Boulder 2813**  
MODELING OF COALESCENCE, AGGLOMERATION AND PHASE SEGREGATION IN MICROGRAVITY PROCESSING OF BIMETALLS

Period	Obligations	
02/13/1989-09/30/1992	FY93: \$0	TOTAL: \$141,066
Prin. Invest.	NASA Tech. Officer	CASE Category
R H DAVIS	LERC/J A SALZMAN	43-Chem Engr

**NAG 3-1389 University of Colorado - Boulder 2820**  
PHASE SEGREGATION DUE TO SIMULTANEOUS MIGRATION AND COALESCENCE

Period	Obligations	
11/23/1992-11/30/1993	FY93: \$40,000	TOTAL: \$40,000
Prin. Invest.	NASA Tech. Officer	CASE Category
R H DAVIS	LERC/J A SALZMAN	43-Chem Engr

**NAG 3-1018 University of Colorado - Boulder 2814**  
THERMAL ACOUSTIC OSCILLATIONS IN SLUSH HYDROGEN

Period	Obligations	
03/13/1989-12/03/1993	FY93: \$0	TOTAL: \$90,323
Prin. Invest.	NASA Tech. Officer	CASE Category
K TIMMERHAUS	LERC/R DEWITT	43-Chem Engr
Y GU	....T HARDY	

**NAG 3-1410 University of Colorado - Boulder 2821**  
MODELING AND NEW EXPERIMENT DEFINITION FOR THE VIBRATION ISOLATION BOX EXPERIMENT SYSTEM

Period	Obligations	
01/25/1993-01/14/1994	FY93: \$40,000	TOTAL: \$40,000
Prin. Invest.	NASA Tech. Officer	CASE Category
R L SANI	LERC/J A SALZMAN	19-Phys Sci, NEC

**NAG 3-1094 University of Colorado - Boulder 2815**  
INTERFACIAL PHENOMENA IN MULTILAYERED FLUID SYSTEMS

Period	Obligations	
12/14/1989-12/14/1993	FY93: \$206,000	TOTAL: \$725,000
Prin. Invest.	NASA Tech. Officer	CASE Category
J N KOSTER	LERC/M E HILL	19-Phys Sci, NEC

**NAG 3-1425 University of Colorado - Boulder 2822**  
HIGH PERFORMANCE PARALLEL ANALYSIS OF COUPLED PROBLEMS FOR AIRCRAFT PROPULSION

Period	Obligations	
12/23/1992-12/31/1993	FY93: \$75,000	TOTAL: \$75,000
Prin. Invest.	NASA Tech. Officer	CASE Category
C FILIPPA	LERC/C C CHAMIS	41-Aero Engr
C H FARHAT		
K C PARK		

**NAG 3-1257 University of Colorado - Boulder 2816**  
IGNITION AND COMBUSTION OF BULK METALS IN A MICROGRAVITY ENVIRONMENT

Period	Obligations	
03/11/1991-11/30/1993	FY93: \$80,000	TOTAL: \$200,000
Prin. Invest.	NASA Tech. Officer	CASE Category
M C BRANCH	LERC/R FRIEDMAN	46-Mech Engr
J W DAILY		
H DINDI		

**NAG 5-78 University of Colorado - Boulder 2823**  
SPECTROSCOPIC OBSERVATIONS OF SELECTED STELLA SYSTEMS

Period	Obligations	
07/01/1980-08/31/1992	FY93: \$0	TOTAL: \$509,260
Prin. Invest.	NASA Tech. Officer	CASE Category
K GARMANY	GSFC/D WEST	11-Astronomy
H F HENRICH		
P MASSEY		

**NAG 3-1277 University of Colorado - Boulder 2817**  
MICROPHYSICS OF CLOSE APPROACH AND FILM DRAINAGE AND RUPTURE DURING DROP COALESCENCE

Period	Obligations	
04/14/1991-05/14/1994	FY93: \$79,000	TOTAL: \$237,000
Prin. Invest.	NASA Tech. Officer	CASE Category
R H DAVIS	LERC/J A SALZMAN	49-Engr, NEC

**NAG 5-82 University of Colorado - Boulder 2824**  
STUDIES OF COOL STARS

Period	Obligations	
07/01/1980-10/31/1992	FY93: \$0	TOTAL: \$766,951
Prin. Invest.	NASA Tech. Officer	CASE Category
J L LINSKY	GSFC/D WEST	11-Astronomy
J E NEFF		
J BOOKBINDER		

**NASA'S UNIVERSITY PROGRAM  
COLORADO (Continued)**

**NAG 5-96 University of Colorado - Boulder 2825**  
STUDY OF REFLECTION GRATING SPECTROMETERS FOR X-RAY ASTRONOMY

Period	Obligations	
08/16/1983-10/31/1993	FY93: \$230,000	TOTAL: \$2,868,035
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
W C CASH	GSFC/L J EARLY	11-Astronomy
	....R H PLESS	

**NAG 5-698 University of Colorado - Boulder 2832**  
ROCKET INVESTIGATION OF THE ROLE OF NITRIC OXIDE IN THE LOWER THERMOSPHERE

Period	Obligations	
03/22/1993-03/31/1994	FY93: \$199,970	TOTAL: \$199,970
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
C A BARTH	GSFC/L J EARLY	13-Physics
	....R H PLESS	

**NAG 5-193 University of Colorado - Boulder 2826**  
SPECTROSCOPIC STUDIES OF INTERSTELLAR MOTTER AND STELLA MOTTER LOSS

Period	Obligations	
07/01/1981-09/30/1992	FY93: \$0	TOTAL: \$502,424
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
J M SHULL	GSFC/D WEST	11-Astronomy
G M VOIT		

**NAG 5-816 University of Colorado - Boulder 2833**  
FUNDAMENTAL PROPERTIES OF THE EG ANDROMEDAE SYSTEM

Period	Obligations	
07/15/1986-06/30/1992	FY93: \$0	TOTAL: \$91,843
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
R E STENCEL	GSFC/D K WEST	11-Astronomy
J E PESCE		
J DACHS		

**NAG 5-199 University of Colorado - Boulder 2827**  
THE SHOCKING TRUTH ABOUT BETA CASSIOPEIAE

Period	Obligations	
07/15/1981-01/31/1993	FY93: \$5,000	TOTAL: \$569,300
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
T R AYRES	GSFC/D WEST	11-Astronomy
S L HAWLEY		
A BROWN		

**NAG 5-904 University of Colorado - Boulder 2834**  
AIRCRAFT INVESTIGATIONS OF BOUNDARY LAYER STRUCTURE AND TURBULANCE DURING FIFE

Period	Obligations	
05/01/1987-07/31/1992	FY93: \$0	TOTAL: \$420,225
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
R L GROSSMAN	GSFC/P J WETZEL	39-Env Sci, NEC
	....F HALL	

**NAG 5-350 University of Colorado - Boulder 2828**  
ANALYSIS OF SELECTED SYMBIOTIC STARS

Period	Obligations	
08/01/1983-10/14/1993	FY93: \$10,000	TOTAL: \$298,527
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
E W BRUGAL	GSFC/D WEST	11-Astronomy
L A WILLSON		

**NAG 5-985 University of Colorado - Boulder 2835**  
ULTRAVIOLET OBSERVATIONS OF SELECTED ASTRONOMICAL SOURCES

Period	Obligations	
09/01/1987-01/31/1994	FY93: \$15,000	TOTAL: \$215,500
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
A BROWN	GSFC/Y KONDO	11-Astronomy

**NAG 5-485 University of Colorado - Boulder 2829**  
STUDIES OF POLAR MOTION, EARTH ROTATION AND PLATE MOTION

Period	Obligations	
12/20/1984-12/31/1991	FY93: \$0	TOTAL: \$509,086
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
J WAHR	GSFC/H V FREY	32-Geological Sci

**NAG 5-1115 University of Colorado - Boulder 2836**  
INVESTIGATION GRAVITY WAVES CONVECTIVELY ACTIVE BOUNDARY

Period	Obligations	
01/01/1989-06/30/1993	FY93: \$25,000	TOTAL: \$84,608
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
R L GROSSMAN	GSFC/S H MELFI	31-Atmos Sci

**NAG 5-633 University of Colorado - Boulder 2830**  
LASP CORNALL EUV SPECTROMETER CONVERSION

Period	Obligations	
12/20/1985-07/31/1992	FY93: \$0	TOTAL: \$1,708,561
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
G J ROTTMAN	GSFC/L J EARLY	13-Physics
	....R H PLESS	

**NAG 5-1214 University of Colorado - Boulder 2837**  
SEARCH FOR NEW RED SUPERGIANTS IN THE NORTHERN MILKY WAY

Period	Obligations	
07/14/1989-08/14/1992	FY93: \$165	TOTAL: \$201,390
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
R E STENCEL	GSFC/D WEST	11-Astronomy

**NAG 5-676 University of Colorado - Boulder 2831**  
SOLAR EXTREME ULTRAVIOLET IRRADIANCE COMPARISON EXPERIMENT

Period	Obligations	
03/25/1991-03/31/1994	FY93: \$135,000	TOTAL: \$430,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
T N WOODS	GSFC/L J EARLY	13-Physics
	....R H PLESS	

**NAG 5-1215 University of Colorado - Boulder 2838**  
ASTROPHYSICAL DATA PROGRAM RESEARCH

Period	Obligations	
07/14/1989-11/30/1993	FY93: \$18,000	TOTAL: \$287,500
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
T R AYRES	GSFC/D WEST	11-Astronomy

**NASA'S UNIVERSITY PROGRAM  
COLORADO (Continued)**

**NAG 5-1224 University of Colorado - Boulder 2839**  
ASTROPHYSICAL DATA PROGRAM RESEARCH  
*Period Obligations*  
07/27/1989-08/31/1993 FY93: \$32,000 TOTAL: \$306,877  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J M SHULL GSFC/D WEST 11-Astronomy  
J T STOCKE  
R A EDELSON

**NAG 5-1534 University of Colorado - Boulder 2846**  
DIGGING IN THE CORONAL GRAVEYARD: DEEP ROSAT IMAGING OF THE ARCHETYPE K GIANT ARCTURUS  
*Period Obligations*  
04/09/1991-04/14/1992 FY93: \$388 TOTAL: \$9,612  
*Prin. Invest. NASA Tech. Officer CASE Category*  
T R AYRES GSFC/R PETRE 11-Astronomy

**NAG 5-1374 University of Colorado - Boulder 2840**  
CAN SHOCK WAVES HEAT COOL GIANT CHRONOSPHERES  
*Period Obligations*  
04/23/1990-05/31/1992 FY93: \$22 TOTAL: \$56,350  
*Prin. Invest. NASA Tech. Officer CASE Category*  
M CUNTZ GSFC/D WEST 12-Chemistry

**NAG 5-1584 University of Colorado - Boulder 2847**  
PSPC OBSERVATIONS FOR A COMPLETE, FLUX-LIMITED SAMPLE OF X-RAY SELECTED BL LACERTAE OBJECTS  
*Period Obligations*  
05/09/1991-05/31/1993 FY93: \$0 TOTAL: \$20,004  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J T STOCKE GSFC/R PETRE 11-Astronomy

**NAG 5-1475 University of Colorado - Boulder 2841**  
PARTICIPATION IN THE EARTH PROBE TOMS MISSION  
*Period Obligations*  
10/18/1990-11/14/1993 FY93: \$65,000 TOTAL: \$266,741  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D A RUSCH GSFC/J R HERMAN 31-Atmos Sci  
T CLANEY

**NAG 5-1589 University of Colorado - Boulder 2848**  
ROSAT OBSERVATIONS OF JOVIAN AURORAL X-RAYS  
*Period Obligations*  
05/09/1991-05/31/1993 FY93: \$0 TOTAL: \$30,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
F BAGENAL GSFC/R PETRE 11-Astronomy

**NAG 5-1505 University of Colorado - Boulder 2842**  
SOLAR ULTRAVIOLET IRRADIANCE VARIATION DURING SOLAR CYCLE 22 - SPGIP  
*Period Obligations*  
03/27/1991-04/14/1993 FY93: \$0 TOTAL: \$124,426  
*Prin. Invest. NASA Tech. Officer CASE Category*  
T N WOODS GSFC/G D BULLOCK 19-Phys Sci, NEC

**NAG 5-1666 University of Colorado - Boulder 2849**  
THE FORMATION PROCESS OF THE HE I LANDBAL10830 LINE IN COOL GIANT  
*Period Obligations*  
06/24/1991-06/30/1993 FY93: \$16,267 TOTAL: \$21,667  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J L LINSKY GSFC/R PETRE 11-Astronomy

**NAG 5-1506 University of Colorado - Boulder 2843**  
SATELLITE STUDY OF CHAOTIC PROCESSES IN THE CURRENT DISRUPTION REGION  
*Period Obligations*  
03/27/1991-04/14/1993 FY93: \$0 TOTAL: \$119,995  
*Prin. Invest. NASA Tech. Officer CASE Category*  
T W SPEISER GSFC/G D BULLOCK 19-Phys Sci, NEC

**NAG 5-1667 University of Colorado - Boulder 2850**  
DUST CONDENSATION SEQUENCE AND TIME VARIABILITY IN CIRCUMSTELLAR SHELLS  
*Period Obligations*  
06/24/1991-12/31/1993 FY93: \$0 TOTAL: \$71,935  
*Prin. Invest. NASA Tech. Officer CASE Category*  
I R LITTLE-MARENIN GSFC/D WEST 11-Astronomy

**NAG 5-1525 University of Colorado - Boulder 2844**  
AN INVESTIGATION OF THE SOLAR CYCLE RESPONSES OF ODD-NITROGEN IN THE THERMOSPHERE  
*Period Obligations*  
04/11/1991-04/30/1994 FY93: \$65,474 TOTAL: \$187,971  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D W RUSCH GSFC/G D BULLOCK 19-Phys Sci, NEC

**NAG 5-1672 University of Colorado - Boulder 2851**  
TOWARD A BETTER UNDERSTANDING OF RED CLUMP STARS  
*Period Obligations*  
06/27/1991-06/30/1993 FY93: \$0 TOTAL: \$76,500  
*Prin. Invest. NASA Tech. Officer CASE Category*  
G C CLAYTON GSFC/D WEST 11-Astronomy

**NAG 5-1526 University of Colorado - Boulder 2845**  
STELLAR FLARES ON AD LEO: MULTIBAND OBSERVATIONS  
*Period Obligations*  
04/05/1991-04/14/1993 FY93: \$0 TOTAL: \$24,999  
*Prin. Invest. NASA Tech. Officer CASE Category*  
G A DULK GSFC/R PETRE 11-Astronomy

**NAG 5-1701 University of Colorado - Boulder 2852**  
THE CHEMICAL AND PHYSICAL CONDITIONS IN DENSE DIFFUSE CLOUDS  
*Period Obligations*  
07/15/1991-07/14/1993 FY93: \$0 TOTAL: \$58,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
T P SNOW GSFC/D WEST 11-Astronomy

**NASA'S UNIVERSITY PROGRAM**  
**COLORADO (Continued)**

**NAG 5-1715 University of Colorado - Boulder 2853**  
 PARTICIPATION IN THE VERSION O EFFORT FOR THE EOS GROUND  
 SYSTEM PROJECT  

Period	Obligations	
08/13/1991-12/31/1993	FY93: \$100,000	TOTAL: \$255,847
Prin. Invest.	NASA Tech. Officer	CASE Category
W EMERY	GSFC/H K RAMAPRIYAN	39-Env Sci, NEC

**NAG 5-1764 University of Colorado - Boulder 2854**  
 UNDERSTANDING THE CIRCUMSTELLAR SHELL OF THE CARBO N  
 STAR TX PSC  

Period	Obligations	
09/10/1991-09/14/1992	FY93: \$0	TOTAL: \$13,600
Prin. Invest.	NASA Tech. Officer	CASE Category
J LINSKY	GSFC/D WEST	11-Astronomy

**NAG 5-1792 University of Colorado - Boulder 2855**  
 CORONAL STARS IN THE ROSAT WFC SURVEY  

Period	Obligations	
10/27/1991-10/31/1993	FY93: \$49,389	TOTAL: \$59,389
Prin. Invest.	NASA Tech. Officer	CASE Category
A R BROWN	GSFC/R PETRE	11-Astronomy

**NAG 5-1796 University of Colorado - Boulder 2856**  
 ANALYSIS OF SOFT X-RAYS FROM B-EMISSION STARS  

Period	Obligations	
10/29/1991-10/31/1992	FY93: \$0	TOTAL: \$10,000
Prin. Invest.	NASA Tech. Officer	CASE Category
T P SNOW	GSFC/R PETRE	11-Astronomy

**NAG 5-1797 University of Colorado - Boulder 2857**  
 AN ALL-SKY X-RAY SURVEY OF RS CVN AND RELATED OBJE CTS  

Period	Obligations	
10/29/1991-10/31/1992	FY93: \$0	TOTAL: \$49,557
Prin. Invest.	NASA Tech. Officer	CASE Category
J L LINSKY	GSFC/R PETRE	11-Astronomy

**NAG 5-1798 University of Colorado - Boulder 2858**  
 ROSAT-IUE OBS. OF SYMBIOTIC BINARY STARS (\$15K) TH E X-RAY  
 MORPHOLOGY OF SELECTED. . . (\$24,249)  

Period	Obligations	
10/29/1991-10/31/1992	FY93: \$0	TOTAL: \$39,249
Prin. Invest.	NASA Tech. Officer	CASE Category
R E STENCEL	GSFC/R PETRE	11-Astronomy

**NAG 5-1832 University of Colorado - Boulder 2859**  
 ULTRAVIOLET MONITORING OF VV CEPHEI  

Period	Obligations	
11/22/1991-11/30/1992	FY93: \$0	TOTAL: \$25,000
Prin. Invest.	NASA Tech. Officer	CASE Category
R E STENCEL	GSFC/D WEST	11-Astronomy

**NAG 5-1853 University of Colorado - Boulder 2860**  
 GODDARD HIGH RESOLUTION SPECTROGRAPH (GHR) INCLUD ING  
 ACTIVITIES AS A GHR GUARANTEED TIME OBSERV.  

Period	Obligations	
01/02/1992-11/14/1993	FY93: \$374,210	TOTAL: \$688,002
Prin. Invest.	NASA Tech. Officer	CASE Category
J C BRANDT	GSFC/A SMITH	11-Astronomy

**NAG 5-1857 University of Colorado - Boulder 2861**  
 PSPC OBSERVATIONS FOR A COMPLETE, FLUX-LIMITED SAM PLE  
 OF X-RAY SELECTED BL LACERTAE OBJECTS . . . .  

Period	Obligations	
01/02/1992-01/31/1994	FY93: \$17,000	TOTAL: \$62,900
Prin. Invest.	NASA Tech. Officer	CASE Category
J T STOCKE	GSFC/R PETRE	11-Astronomy

**NAG 5-1879 University of Colorado - Boulder 2862**  
 THE SHADOWY EFFECT OF THE MAGELLANIC BRIDGE ON  
 THEBACKGROUND  

Period	Obligations	
02/10/1992-02/14/1994	FY93: \$25,000	TOTAL: \$49,000
Prin. Invest.	NASA Tech. Officer	CASE Category
Q WANG	GSFC/R PETRE	11-Astronomy

**NAG 5-1887 University of Colorado - Boulder 2863**  
 ANALYSIS OF THE SUCCESSFUL DECEMBER 1991 COORDINATVLA  
 CAMPAIGN TO OBSERVE AR LACTAR  

Period	Obligations	
01/27/1992-02/14/1994	FY93: \$22,000	TOTAL: \$45,296
Prin. Invest.	NASA Tech. Officer	CASE Category
J L LINSKY	GSFC/R PETRE	11-Astronomy

**NAG 5-1908 University of Colorado - Boulder 2864**  
 APPLICATION OF GPS TO CRUSTAL DEFORMATION STUDIES IN  
 CALIFORNIA  

Period	Obligations	
02/20/1992-02/28/1994	FY93: \$52,000	TOTAL: \$102,000
Prin. Invest.	NASA Tech. Officer	CASE Category
K LARSON	GSFC/B G BILLS	32-Geological Sci

**NAG 5-1931 University of Colorado - Boulder 2865**  
 STUDY AND DEMONSTRATION OF PLANNING AND SCHEDULING  
 CONCEPTS FOR THE EARTH OBSERVING SYSTEM MISSION  

Period	Obligations	
03/04/1992-04/14/1994	FY93: \$89,084	TOTAL: \$188,688
Prin. Invest.	NASA Tech. Officer	CASE Category
T P SPARN	GSFC/A C KELLY	22-Computer Science
A J JOUCHONX		

**NAG 5-1956 University of Colorado - Boulder 2866**  
 MULTI-WAVELENGTH STUDY OF HD50896 (WN+C?) ORIGINA OF  
 ITS VARIABILITY  

Period	Obligations	
03/26/1992-11/14/1993	FY93: \$20,000	TOTAL: \$52,000
Prin. Invest.	NASA Tech. Officer	CASE Category
P S CONTI	GSFC/D WEST	11-Astronomy

**NAG 5-2014 University of Colorado - Boulder 2867**  
 IN IMAGING STUDY OF THE GALACTIC DIFFUSE X-RAY BAC  
 KGROUND NEAR THE GALACTIC PLAN  

Period	Obligations	
07/01/1992-06/30/1994	FY93: \$20,000	TOTAL: \$59,500
Prin. Invest.	NASA Tech. Officer	CASE Category
Q WANG	GSFC/D WEST	11-Astronomy

**NASA'S UNIVERSITY PROGRAM**  
**COLORADO (Continued)**

**NAG 5-2026 University of Colorado - Boulder 2868**  
 MODELING THE GAMMA-RAY SPECTRA OF ACTIVE GALACTIC NUCLEI  

Period	Obligations	
07/08/1992-07/14/1994	FY93: \$45,000	TOTAL: \$75,000
Prin. Invest.	NASA Tech. Officer	CASE Category
M C BEGELMAN	GSFC/J P NORRIS	11-Astronomy
	....N WHITE	

**NAG 5-2161 University of Colorado - Boulder 2875**  
 RADIATIVE AND MAGNETIC PROPERTIES OF PLAGES ON SOLAR-TYPE DWARFS  

Period	Obligations	
12/31/1992-12/31/1993	FY93: \$17,160	TOTAL: \$17,160
Prin. Invest.	NASA Tech. Officer	CASE Category
J L LINSKY	GSFC/D WEST	11-Astronomy

**NAG 5-2054 University of Colorado - Boulder 2869**  
 RELATIONSHIPS BETWEEN MAGNETIC FIELDS AND NON-THERMAL EMISSION ON THE LOWER MAIN SEQUENCE  

Period	Obligations	
07/28/1992-01/31/1993	FY93: \$0	TOTAL: \$7,000
Prin. Invest.	NASA Tech. Officer	CASE Category
J L LINSKY	GSFC/D WEST	11-Astronomy

**NAG 5-2256 University of Colorado - Boulder 2876**  
 GLOBAL-SCALE TURBULENT SOLAR CONVECTION COUPLED TO ROTATION AND MAGNETIC FIELDS  

Period	Obligations	
04/27/1993-04/30/1994	FY93: \$135,000	TOTAL: \$135,000
Prin. Invest.	NASA Tech. Officer	CASE Category
J T MOORE	GSFC/T J BIRMINGHAM	13-Physics
	....J D BOHLIN	

**NAG 5-2075 University of Colorado - Boulder 2870**  
 AN ALL-SKY SURVEY OF ACTIVE BINARY STARS  

Period	Obligations	
08/25/1992-08/31/1994	FY93: \$15,000	TOTAL: \$45,000
Prin. Invest.	NASA Tech. Officer	CASE Category
J LINSKY	GSFC/R PETRE	11-Astronomy

**NAG 5-2259 University of Colorado - Boulder 2877**  
 CONTEMPORANEOUS EUVE AND GHRS OBSERVATIONS OF THE OUTER ATMOSPHERIC STRUCTURE OF RS CVN . . . .  

Period	Obligations	
04/30/1993-04/30/1994	FY93: \$53,637	TOTAL: \$53,637
Prin. Invest.	NASA Tech. Officer	CASE Category
A BROWN	GSFC/R OLIVERSEN	11-Astronomy

**NAG 5-2122 University of Colorado - Boulder 2871**  
 INTRINSIC C IV ABSORPTION IN PG-QSOS AND SEYFERT GALAXIES  

Period	Obligations	
10/28/1992-01/31/1994	FY93: \$7,590	TOTAL: \$7,590
Prin. Invest.	NASA Tech. Officer	CASE Category
J M SHULL	GSFC/D WEST	11-Astronomy

**NAG 5-2274 University of Colorado - Boulder 2878**  
 THE CAPELLA DICHOTOMY: PARADIGM LOST?  

Period	Obligations	
05/26/1993-05/31/1994	FY93: \$40,491	TOTAL: \$40,491
Prin. Invest.	NASA Tech. Officer	CASE Category
T R AYRES	GSFC/R OLIVERSEN	11-Astronomy

**NAG 5-2143 University of Colorado - Boulder 2872**  
 CATCHING IT IN THE ACT: PREDICTABLE DECLINES IN V 854 CENTAURI AND UV EXTINCTION PROPERTIES OF DUST.  

Period	Obligations	
11/23/1992-01/31/1994	FY93: \$28,710	TOTAL: \$28,710
Prin. Invest.	NASA Tech. Officer	CASE Category
G C CLAYTON	GSFC/D WEST	11-Astronomy

**NAG 5-2283 University of Colorado - Boulder 2879**  
 OBSERVATIONS OF G191-B2A  

Period	Obligations	
06/10/1993-06/14/1994	FY93: \$27,000	TOTAL: \$27,000
Prin. Invest.	NASA Tech. Officer	CASE Category
J C GREEN	GSFC/R OLIVERSON	11-Astronomy

**NAG 5-2147 University of Colorado - Boulder 2873**  
 SPECTROSCOPY OF OF/WN STAR IN M33  

Period	Obligations	
12/14/1992-01/31/1994	FY93: \$5,000	TOTAL: \$5,000
Prin. Invest.	NASA Tech. Officer	CASE Category
P S CONTI	GSFC/D WEST	11-Astronomy

**NAG 5-2287 University of Colorado - Boulder 2880**  
 RELATIONSHIP BETWEEN NON-METHANE HYDROCARBON EMISSION AND LEAF CARBON BALANCE IN THE BOREAL FOREST.  

Period	Obligations	
06/14/1993-06/14/1994	FY93: \$30,000	TOTAL: \$30,000
Prin. Invest.	NASA Tech. Officer	CASE Category
R K MONSON	GSFC/F G HALL	39-Env Sci, NEC
	....P SELLERS	

**NAG 5-2151 University of Colorado - Boulder 2874**  
 AN X-RAY STUDY OF AN OPTICAL JET FEATURE IN CTB 10 8  

Period	Obligations	
12/14/1992-12/14/1993	FY93: \$5,275	TOTAL: \$5,275
Prin. Invest.	NASA Tech. Officer	CASE Category
A HAMILTON	GSFC/R PETRE	11-Astronomy

**NAG 5-2319 University of Colorado - Boulder 2881**  
 VOYAGER OBSERVATIONS OF FAR-ULTRAVIOLET SPECTRAL FEATURES DUE TO INTERSTELLAR H2 AND DU . . . .  

Period	Obligations	
07/14/1993-07/14/1994	FY93: \$20,000	TOTAL: \$20,000
Prin. Invest.	NASA Tech. Officer	CASE Category
T P SNOW	GSFC/R OLIVERSEN	11-Astronomy

**NASA'S UNIVERSITY PROGRAM**  
**COLORADO (Continued)**

**NAG 5-2332 University of Colorado - Boulder 2882**  
 MEASURING ATTITUDE WITH A GRADIOMETER  
*Period Obligations*  
 07/27/1993-01/31/1994 FY93: \$39,987 TOTAL: \$39,987  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 G BORN GSFC/S KENT 49-Engr, NEC

**NAG 8-882 University of Colorado - Boulder 2889**  
 ANALYSIS OF THE U S AIR FORCE DEFENSE METEOROLOGIC  
 ALSTAELLITE PROGRAM IMAGERY FOR GLOBAL LIGHTING  
*Period Obligations*  
 05/15/1991-05/14/1994 FY93: \$109,292 TOTAL: \$310,156  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 G R SCHARFEN MSFC/S J GOODMAN 31-Atmos Sci

**NAG 5-2353 University of Colorado - Boulder 2883**  
 THE ROLE OF FAULT SEGMENTATION IN EARTHQUAKE DYNAM  
 ICS WITH APPLICATION TO STRIKE FAULTS IN CALIF.  
*Period Obligations*  
 08/12/1993-08/14/1994 FY93: \$52,000 TOTAL: \$52,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J B RUNDLE GSFC/B G BILLS 32-Geological Sci

**NAG 8-925 University of Colorado - Boulder 2890**  
 HST SAGA USING ADAPTIVE RMF  
*Period Obligations*  
 07/06/1992-09/30/1993 FY93: \$0 TOTAL: \$35,877  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M J BALAS MSFC/A P BUKLEY 49-Engr, NEC  
 ....M L BUTLER

**NAG 5-5014 University of Colorado - Boulder 2884**  
 COORDINATED STUDIES OF EQUATORIAL MESOSPHERIC AND  
 LOWER THERMOSPHERIC DYNAMICS BY ROCKET AND CADRE  
*Period Obligations*  
 05/27/1993-12/31/1993 FY93: \$20,000 TOTAL: \$20,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D C FRITTS GSFC/L J EARLY 13-Physics  
 ....R H PLESS

**NAG 8-945 University of Colorado - Boulder 2891**  
 BIOLOGICAL PARTICLES RESEARCH  
*Period Obligations*  
 01/21/1993-01/31/1994 FY93: \$128,000 TOTAL: \$128,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R H DAVIS MSFC/T Y MILLER 43-Chem Engr  
 M LOEWENBERG

**NAG 8-190 University of Colorado - Boulder 2885**  
 GEOPHYSICAL FLUID FLOW EXPERIMENTS ON THE UNITED STATES  
 MICROGRAVITY LABORATORY USML-2  
*Period Obligations*  
 04/25/1991-09/06/1994 FY93: \$70,000 TOTAL: \$209,572  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J HART MSFC/J KAUFMAN 13-Physics  
 J TOOMRE

**NAG 9-407 University of Colorado - Boulder 2892**  
 ESTIMATING AND MODELING THE BACKGROUND ORBITAL DEBRIS  
 POPULATION  
*Period Obligations*  
 10/01/1989-10/01/1993 FY93: \$15,000 TOTAL: \$28,420  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R CULP JSC/D KESSLER 41-Aero Engr

**NAG 8-244 University of Colorado - Boulder 2886**  
 LOW ORDER DECENTRAKIZED CONTROL OF LARGE AEROSPACE  
 STRUCTURES  
*Period Obligations*  
 08/10/1992-08/18/1993 FY93: \$62,277 TOTAL: \$72,277  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M J BALAS MSFC/A P BUKLEY 49-Engr, NEC  
 ....G MYERS

**NAG 9-574 University of Colorado - Boulder 2893**  
 REAL TIME DYNAMICS AND CONTROL STRATEGIES FOR SPACE  
 OPERATIONS OF FLEXIBLE STRUCTURES  
*Period Obligations*  
 04/03/1992-07/15/1993 FY93: \$0 TOTAL: \$50,922  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 K C PARK JSC/J W SUNKEL 45-Elec Engr

**NAG 8-253 University of Colorado - Boulder 2887**  
 COHERENT LIDAR DESIGN AND PERFORMANCE VERIFICATION  
*Period Obligations*  
 11/13/1992-11/12/1993 FY93: \$134,024 TOTAL: \$134,024  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R G FREHLICH MSFC/M J KAVAYA 13-Physics  
 ....W D JONES

**NAGW 389 University of Colorado - Boulder 2894**  
 THEORETICAL RESEARCH IN PHYSICS OF PLANETARY  
 ATMOSPHERES; GLOGI OF ATMOSPHERE CONSTITENTS 6  
 DYACMIL  
*Period Obligations*  
 11/01/1982-10/31/1992 FY93: \$0 TOTAL: \$727,430  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 L ESPOSITO HQ/K FOX 31-Atmos Sci  
 I STEWART ....W L QUAIDE

**NAG 8-787 University of Colorado - Boulder 2888**  
 PLANETARY CIRCULATION IN PRESENCE OF TRANSIENT AND SELF  
 INDUCED HEATING  
*Period Obligations*  
 07/17/1989-10/21/1992 FY93: \$27 TOTAL: \$316,973  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M L SALBY MSFC/J W KAUFMAN 31-Atmos Sci  
 R R GARCIA ....F R ROBERTSON

**NAGW 641 University of Colorado - Boulder 2895**  
 CRYOSPHERE DATA MANAGEMENTTEM FOR DMSP  
*Period Obligations*  
 06/01/1984-06/30/1993 FY93: \$110,000 TOTAL: \$4,174,929  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R G BARRY HQ/R H THOMAS 33-Oceanography  
 ....W S WILSON

**NASA'S UNIVERSITY PROGRAM**  
**COLORADO (Continued)**

**NAGW 766 University of Colorado - Boulder 2896**  
 THEORY OF SPECTRA FORMATION IN ASTROPHYSICAL SYSTEMS  
*Period Obligations*  
 07/15/1985-02/28/1994 FY93: \$290,000 TOTAL: \$2,354,550  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J M SCHULL HQ/G C CLAYTON 11-Astronomy  
 ....A N BUNNER

**NAGW 1197 University of Colorado - Boulder 2904**  
 CENTER FOR THE COMMERCIAL DEVELOPMENT  
*Period Obligations*  
 10/14/1987-10/31/1993 FY93: \$1,486,000 TOTAL: \$8,240,146  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M LUTTGES HQ/W A ORAN 59-Life Sci, NEC  
 J BERRYMAN ....A VILLAMIL

**NAGW 769 University of Colorado - Boulder 2897**  
 STUDIES OF THE DYNAMICS OF OUTER PLANET RINGS  
*Period Obligations*  
 07/01/1985-09/30/1992 FY93: \$0 TOTAL: \$232,742  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 L W ESPOSITO HQ/J R UNDERWOOD 32-Geological Sci  
 ....J M BOYCE

**NAGW 1293 University of Colorado - Boulder 2905**  
 UNDERSTANDING MESAZONIC TECH  
*Period Obligations*  
 05/23/1988-12/31/1992 FY93: \$0 TOTAL: \$220,200  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 W W ATKINSON HQ/M BALTUCK 32-Geological Sci  
 A GOETZ ....R MURPHY

**NAGW 771 University of Colorado - Boulder 2898**  
 REMOTE SENSING ANALYSIS OF MARS  
*Period Obligations*  
 06/01/1985-10/31/1993 FY93: \$45,767 TOTAL: \$231,405  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 B JAKOSKY HQ/J R UNDERWOOD 32-Geological Sci  
 ....J M BOYCE

**NAGW 1387 University of Colorado - Boulder 2906**  
 EVOLUTION OF LARGE SCALE PLASMA STRUCTURES IN COMETS  
*Period Obligations*  
 08/04/1988-09/30/1993 FY93: \$89,004 TOTAL: \$351,867  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J C BRANDT HQ/J H RAHE 11-Astronomy

**NAGW 772 University of Colorado - Boulder 2899**  
 INVESTIGATION OF IRREVERSIBLE MATERIAL EXCHANGE  
*Period Obligations*  
 06/01/1985-11/30/1992 FY93: \$0 TOTAL: \$1,464,833  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M L SALBY HQ/R D MCPETERS 31-Atmos Sci  
 ....M J PRATHER

**NAGW 1388 University of Colorado - Boulder 2907**  
 CENTER FOR SPACE CONSTRUCTION  
*Period Obligations*  
 07/20/1988-12/31/1993 FY93: \$1,530,000 TOTAL: \$8,205,542  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 G W MORGANTHALER HQ/M S HIRSCHBEIN 49-Engr, NEC  
 S STURE ....S C HARTMAN

**NAGW 1105 University of Colorado - Boulder 2900**  
 TELECOMMUNICATIONS POLICY, TRENDS AND TECHNOLOGY  
*Period Obligations*  
 06/01/1987-06/30/1993 FY93: \$0 TOTAL: \$897,868  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R BYERLY HQ/J W KIERIER 99-Multi-Discip  
 F S BARNES  
 D JUNE

**NAGW 1415 University of Colorado - Boulder 2908**  
 BASIC RESEARCH IN GEOSCIENCE POLICY  
*Period Obligations*  
 08/16/1988-06/30/1992 FY93: \$0 TOTAL: \$285,090  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R BYERLY HQ/D M BUTLER 39-Env Sci, NEC

**NAGW 1110 University of Colorado - Boulder 2901**  
 ALGORITHM VALIDATION FOR ALONG TRACK SCANNING  
 RADIOMETER  
*Period Obligations*  
 06/01/1987-04/30/1994 FY93: \$182,000 TOTAL: \$713,988  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 W J EMERY HQ/G S LAGERLOEF 33-Oceanography  
 ....W S WILSON

**NAGW 1462 University of Colorado - Boulder 2909**  
 MAX 91 COORDINATION AND STUDIES OF SOLAR ACTIVITY  
*Period Obligations*  
 10/05/1988-11/30/1993 FY93: \$60,167 TOTAL: \$272,179  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A L KIPLINGER HQ/J D BOHLIN 13-Physics  
 ....S KANE

**NAGW 1124 University of Colorado - Boulder 2902**  
 ALTIMETRY DATA ASSIMULATION AND NUMERICAL OCEAN  
 MODELING  
*Period Obligations*  
 07/01/1987-09/30/1993 FY93: \$55,000 TOTAL: \$897,848  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 G BORN HQ/G S LAGERLOEF 33-Oceanography  
 R LEBEN ....W S WILSON

**NAGW 1479 University of Colorado - Boulder 2910**  
 THEORETICAL ASTROPHYSICS OF COSMIC ULTRAVIOLET AND  
 X-RAY  
*Period Obligations*  
 11/09/1988-12/31/1993 FY93: \$65,000 TOTAL: \$290,493  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J M SHULL HQ/L J KALUZIENSKI 11-Astronomy  
 ....A N BUNNER

**NAGW 1176 University of Colorado - Boulder 2903**  
 MAGNETOTAL PARTICLE DYNAMICS AND AURORAL  
*Period Obligations*  
 09/22/1987-06/30/1994 FY93: \$88,000 TOTAL: \$394,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 T W SPEISER HQ/Q M MELLOTT 13-Physics  
 ....T W PERRY

**NAGW 1601 University of Colorado - Boulder 2911**  
 ARTIFICIAL INTELLIGENCE FOR GEOLOGICAL MAPPING  
*Period Obligations*  
 02/06/1989-01/31/1992 FY93: \$0 TOTAL: \$497,562  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 F A KRUSE HQ/J K ALEXANDER 32-Geological Sci  
 ....D A HOLLAND



**NASA'S UNIVERSITY PROGRAM  
COLORADO (Continued)**

**NAGW 1742 University of Colorado - Boulder 2912**  
REDUCTION AND ANALYSIS OF SME UV DATA  
*Period Obligations*  
04/12/1989-02/29/1992 FY93: \$0 TOTAL: \$168,013  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D W RUSCH HQ/R D MCPETERS 31-Atmos Sci  
..../M J PRATHER

**NAGW 1786 University of Colorado - Boulder 2913**  
ARTIFICIAL INTELLIGENCE APPLICATIONS FOR SEA ICE CLASS.  
*Period Obligations*  
07/11/1989-03/31/1993 FY93: \$0 TOTAL: \$254,586  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J MASLANIK HQ/R H THOMAS 33-Oceanography  
J R KEY ..../W S WILSON

**NAGW 1839 University of Colorado - Boulder 2914**  
APPLICATION OF SPECIAL SENSOR MICROWAVE IMAGER CSS MI  
DATA FOR SNOW COVER CLIMATE RESEARCH  
*Period Obligations*  
12/07/1989-12/31/1992 FY93: \$0 TOTAL: \$494,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R G BARRY HQ/R H THOMAS 39-Env Sci, NEC  
..../W S WILSON

**NAGW 1843 University of Colorado - Boulder 2915**  
STUDIES OF GLOBAL SEA LEVEL AND ICE SHEET VOLUME  
CHANGES  
*Period Obligations*  
10/02/1989-12/31/1992 FY93: \$0 TOTAL: \$144,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J WAHR HQ/N B DOUGLAS 39-Env Sci, NEC  
..../M BALTUCK

**NAGW 1865 University of Colorado - Boulder 2916**  
GPS APPLICATIONS TO ANTENNA MULTI-PATH MEASUREMENT  
*Period Obligations*  
10/11/1989-04/14/1992 FY93: \$0 TOTAL: \$94,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
P F MACDORAN HQ/J W KIEBLER 99-Multi-Discip  
...../D A OLMSTEAD

**NAGW 1902 University of Colorado - Boulder 2917**  
VISUALIZATION TECHNIQUES TO AID IN ANALYSIS OF  
MULTI-SPECTRAL  
*Period Obligations*  
11/02/1989-09/30/1992 FY93: \$0 TOTAL: \$350,501  
*Prin. Invest. NASA Tech. Officer CASE Category*  
E W BRUGEL HQ/J WEISS 11-Astronomy  
G DOMIK ..../G RIEGLER

**NAGW 1942 University of Colorado - Boulder 2918**  
TEMPORAL VARIATIONS OF THE GEOPOTENTIAL  
*Period Obligations*  
04/26/1990-12/31/1993 FY93: \$73,000 TOTAL: \$194,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J WAHR HQ/M BALTUCK 19-Phys Sci, NEC

**NAGW 1944 University of Colorado - Boulder 2919**  
SEQUENTIAL ESTIMATION OF REGIONAL STATION POSITION S FOR  
HIGH TEMPORAL RESOLUTION  
*Period Obligations*  
04/26/1990-03/31/1992 FY93: \$0 TOTAL: \$83,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
G ROSBOROUGH HQ/M BALTUCK 19-Phys Sci, NEC

**NAGW 1960 University of Colorado - Boulder 2920**  
MAPPING ATMOSPHERIC WATER VAPOR AND ITS MOTIONS W SSMI  
DATA AND THE CONSEQUENCES FOR MOISTURE FLUX  
*Period Obligations*  
01/26/1990-12/31/1993 FY93: \$90,000 TOTAL: \$470,707  
*Prin. Invest. NASA Tech. Officer CASE Category*  
W EMERY HQ/J C DODGE 31-Atmos Sci  
..../A J TUYAHOV

**NAGW 1994 University of Colorado - Boulder 2921**  
NAGW-1994/UNIV OF COLORADO/STUDY OF THE SOLAR CORONO  
USING RADIO AND SPACE OBSERVATIONS  
*Period Obligations*  
03/01/1990-10/31/1993 FY93: \$88,824 TOTAL: \$313,625  
*Prin. Invest. NASA Tech. Officer CASE Category*  
G A DULK HQ/J D BOHLIN 13-Physics  
..../S KANE

**NAGW 2070 University of Colorado - Boulder 2922**  
THE NATURE OF EOLIAN ACTIVITY DURING THE HOLOCENE ON  
THE NORTHERN HIGHPLANINS, USA  
*Period Obligations*  
05/04/1990-06/30/1993 FY93: \$0 TOTAL: \$318,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
A GOETZ HQ/M BALTUCK 32-Geological Sci  
..../T J PIEPER

**NAGW 2110 University of Colorado - Boulder 2923**  
MECHANICS OF GRANULAR MATERIALS (MGM)  
*Period Obligations*  
05/10/1990-05/31/1992 FY93: \$0 TOTAL: \$194,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
S STURE HQ/M C LEE 44-Civil Engr

**NAGW 2116 University of Colorado - Boulder 2924**  
NAGW-2116/UNIV OF COLORADO/THERMOSPHERIC AIRGLOW  
MODEL DEVELOPMENT  
*Period Obligations*  
05/29/1990-03/31/1994 FY93: \$54,865 TOTAL: \$202,356  
*Prin. Invest. NASA Tech. Officer CASE Category*  
S C SOLOMON HQ/M M MELLOTT 13-Physics  
..../T PERRY

**NAGW 2130 University of Colorado - Boulder 2925**  
NAGW-2130/UNIV OF COLORADO/SME TEMPERATURE STUDIES OF  
THE MESOSPHERE AND UPPER STRATOSPHERE  
*Period Obligations*  
05/18/1990-02/28/1993 FY93: \$0 TOTAL: \$211,424  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R T CLANCY HQ/R D MCPETERS 31-Atmos Sci  
..../M J PRATHER

**NAGW 2158 University of Colorado - Boulder 2926**  
NAGW-2158/UNIV OF COLORADO/APPLICATION OF MULTISPE  
CTRAL SATELLITE DATA IN POLAR SURFACE ENERGY FLUX  
*Period Obligations*  
07/13/1990-03/31/1994 FY93: \$142,098 TOTAL: \$580,037  
*Prin. Invest. NASA Tech. Officer CASE Category*  
K STEFFEN HQ/R H THOMAS 33-Oceanography  
..../W S WILSON

**NASA'S UNIVERSITY PROGRAM  
COLORADO (Continued)**

**NAGW 2248 University of Colorado - Boulder 2927**  
NAGW-2248/UNIV COLORADO @ BOULDER/DYNAMICS OF  
PLANETESIMALS AND KUIPER COMET BELT  
*Period Obligations*  
03/11/1991-12/31/1993 FY93: \$49,911 TOTAL: \$140,201  
*Prin. Invest. NASA Tech. Officer CASE Category*  
G R STEWART HQ/J A NUTH 19-Phys Sci, NEC

**NAGW 2258 University of Colorado - Boulder 2928**  
PARTICIPATION IN THE ASTROPHYSICS DATA SYSTEM PROJ ECT  
*Period Obligations*  
01/09/1991-09/30/1992 FY93: \$0 TOTAL: \$350,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
E W BRUGEL HQ/G S KUTTEN 11-Astronomy  
..../G R RIEGLER

**NAGW 2286 University of Colorado - Boulder 2929**  
HISTORY OF WATER ON MARS  
*Period Obligations*  
03/06/1991-10/31/1993 FY93: \$41,878 TOTAL: \$121,811  
*Prin. Invest. NASA Tech. Officer CASE Category*  
B JAKOSKY HQ/J M BOYCE 32-Geological Sci

**NAGW 2318 University of Colorado - Boulder 2930**  
SPATIAL AND TEMPORAL STUDIES OF MARTIAN DUST TRANS  
PORT  
*Period Obligations*  
12/28/1990-01/31/1994 FY93: \$43,140 TOTAL: \$129,420  
*Prin. Invest. NASA Tech. Officer CASE Category*  
S W LEE HQ/T A MAXWELL 32-Geological Sci

**NAGW 2338 University of Colorado - Boulder 2931**  
STUDIES OF CIRCUMSTELLAR AND INTERSTELLAR DUST  
*Period Obligations*  
01/31/1991-10/31/1993 FY93: \$0 TOTAL: \$140,191  
*Prin. Invest. NASA Tech. Officer CASE Category*  
G CLAYTON HQ/D P HUENEMOERDER 13-Physics

**NAGW 2404 University of Colorado - Boulder 2932**  
THE COLLISIONAL ORIGIN AND EVOLUTION OF NEPTUNE'S RINGS  
*Period Obligations*  
03/18/1991-12/31/1993 FY93: \$48,652 TOTAL: \$191,630  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J E COLWELL HQ/W L QUAIDE 19-Phys Sci, NEC

**NAGW 2435 University of Colorado - Boulder 2933**  
SHUTTLE-BASED ULTRAVIOLET IMAGING OF THE MOON  
*Period Obligations*  
04/19/1991-02/28/1993 FY93: \$0 TOTAL: \$21,592  
*Prin. Invest. NASA Tech. Officer CASE Category*  
S A STERN HQ/W L QUAIDE 19-Phys Sci, NEC

**NAGW 2438 University of Colorado - Boulder 2934**  
NAGW-2438/UNIV COLORADO/LABORATORY STUDIES OF LOW  
TEMPERATURE RATE COEFFICIENTS: THE ATMOSPHERIC  
*Period Obligations*  
05/23/1991-12/31/1993 FY93: \$77,000 TOTAL: \$207,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
S R LEONE HQ/J T BERGSTRALH 11-Astronomy

**NAGW 2484 University of Colorado - Boulder 2935**  
A COMPREHENSIVE ANALYSIS OF IO'S TORUS AND ATMOSPHE  
RE  
*Period Obligations*  
05/23/1991-12/31/1993 FY93: \$55,000 TOTAL: \$135,114  
*Prin. Invest. NASA Tech. Officer CASE Category*  
N M SCHNEIDER HQ/W QUAIDE 11-Astronomy

**NAGW 2488 University of Colorado - Boulder 2936**  
AEROSOL PROPERTIES OF RADIATIVE ENERGY BALANCE OF  
NEPTUNE  
*Period Obligations*  
08/07/1991-12/31/1993 FY93: \$32,000 TOTAL: \$98,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
W R PRYOR HQ/W L QUAIDE 19-Phys Sci, NEC

**NAGW 2492 University of Colorado - Boulder 2937**  
IMAGING AND SPECTROSCOPY OF TO'S TOURS AND ATMOSPHE  
RE  
*Period Obligations*  
07/25/1991-12/31/1993 FY93: \$50,000 TOTAL: \$121,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
N M SCHNEIDER HQ/J H RAHE 11-Astronomy

**NAGW 2568 University of Colorado - Boulder 2938**  
NAGW-2568/UNIV COLORADO @ BOULDER/DIAGNOSTICS OF THE  
HYDROGE LYMAN AND BALMERLINES DURING THE IMPULSI  
*Period Obligations*  
06/20/1991-03/31/1993 FY93: \$0 TOTAL: \$59,500  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J L LINSKY HQ/W WAGNER 13-Physics  
..../K LANG

**NAGW 2586 University of Colorado - Boulder 2939**  
MODELING OF PARTITIONING OF REACTIVE ODD NITROGEN IN  
THE LOWER STRATOSPHERIC USING AIRCRAFT MEASUREM  
*Period Obligations*  
07/31/1991-09/30/1992 FY93: \$0 TOTAL: \$72,617  
*Prin. Invest. NASA Tech. Officer CASE Category*  
S R KAWA HQ/M J KURYLO 31-Atmos Sci  
D W FAHEY ....R F HAMPSON

**NAGW 2598 University of Colorado - Boulder 2940**  
NAGW-2598/UNIV COLORADO/PARAMETERIZATION AND SEALING  
OF ARCTIC ICE CONDITIONS IN THE CONTEXT OF ICE-AT  
*Period Obligations*  
07/22/1991-03/31/1994 FY93: \$77,000 TOTAL: \$257,620  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R G BARRY HQ/R H THOMAS 39-Env Sci, NEC

**NAGW 2651 University of Colorado - Boulder 2941**  
A STUDY OF THE EARTH'S LOWER MANTLE AND UPPER CORE  
UTILIZING GEOMAGNETIC AND EARTH ROTATION DATA  
*Period Obligations*  
07/24/1991-06/30/1994 FY93: \$0 TOTAL: \$93,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
F BAGENAL HQ/M BALTUCK 32-Geological Sci

# **NASA'S UNIVERSITY PROGRAM** **COLORADO (Continued)**

**NAGW 2675 University of Colorado - Boulder 2942**  
 BL LACERTAE OBJECTS  
*Period Obligations*  
 08/20/1991-04/30/1994 FY93: \$85,300 TOTAL: \$247,799  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J T STOCKE HQ/G S KUTTER 11-Astronomy  
 ....J R RIEGLER

**NAGW 2684 University of Colorado - Boulder 2943**  
 STUDY OF IOVIAN DECA-METRIC ARCS AND IOGENIC ALFVEN WAVES  
*Period Obligations*  
 08/20/1991-08/31/1993 FY93: \$0 TOTAL: \$64,898  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 F BAGENAL HQ/M M MELLOTT 13-Physics  
 ....J D BOHLIN

**NAGW 2704 University of Colorado - Boulder 2944**  
 GRAVITY AND THE GEOID IN THE NEPAL HIMALAYA  
*Period Obligations*  
 08/22/1991-06/30/1992 FY93: \$0 TOTAL: \$19,862  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R BILHAM HQ/M BALTUCK 32-Geological Sci  
 ....B J MALCOLM

**NAGW 2706 University of Colorado - Boulder 2945**  
 INVERSE SEQUENTIAL PROCEDURES FOR THE MONITORING OF TIME SERIES  
*Period Obligations*  
 09/23/1992-09/30/1993 FY93: \$0 TOTAL: \$25,087  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 U RADOK HQ/R A SCHIFFER 39-Env Sci, NEC  
 ....D M BUTLER

**NAGW 2731 University of Colorado - Boulder 2946**  
 NAGW-2731/UNIV COLORADO/COLLABORATIVE RESEARCH: SCALING THEORIES OF HYDROLOGY, HYDRAULICS  
*Period Obligations*  
 09/20/1991-12/31/1993 FY93: \$53,000 TOTAL: \$138,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 V K GUPTA HQ/G ASRAR 39-Env Sci, NEC  
 E C MEMIRE

**NAGW 2744 University of Colorado - Boulder 2947**  
 EL CHICHON AEROSOL STUDIES BASED UPON SME RADIANCE OBSERVATIONS  
*Period Obligations*  
 09/24/1991-06/30/1993 FY93: \$0 TOTAL: \$80,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D W RUSCH HQ/J A KAYE 31-Atmos Sci  
 ....R E MURPHY

**NAGW 2754 University of Colorado - Boulder 2948**  
 STUDY OF THE LARGE SCALE SOLAR CORONA W/SSM CORONA GRAPH/ POLARIMETER DATA  
*Period Obligations*  
 11/01/1991-03/31/1994 FY93: \$51,134 TOTAL: \$98,565  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 F BAGENAL HQ/W J WAGNER 13-Physics  
 ....K LANG

**NAGW 2825 University of Colorado - Boulder 2949**  
 SME NITRIC OXIDE DATA  
*Period Obligations*  
 01/03/1992-03/31/1994 FY93: \$62,637 TOTAL: \$122,552  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 C BARTH HQ/D L REASONER 13-Physics  
 ....J D BOHLIN

**NAGW 2851 University of Colorado - Boulder 2950**  
 NAGW-2851/UNIV COLORADO/AN INVESTIGATION OF THE IMPORTANCE OF AURORAL PRECIPITATION ON THE SOLAR  
*Period Obligations*  
 01/31/1992-03/31/1994 FY93: \$43,917 TOTAL: \$84,445  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 T J ROWELL HQ/D L REASONER 13-Physics  
 ....J D BOHLIN

**NAGW 2879 University of Colorado - Boulder 2951**  
 ATMOSPHERIC PLUMES ON TRITON  
*Period Obligations*  
 02/10/1992-06/30/1993 FY93: \$0 TOTAL: \$41,852  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 B JAKOSKY HQ/W L QUAIDE 19-Phys Sci, NEC

**NAGW 2895 University of Colorado - Boulder 2952**  
 KINETIC THEORY MODELS OF PLANETARY RINGS  
*Period Obligations*  
 02/20/1992-02/28/1994 FY93: \$47,000 TOTAL: \$92,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 G R STEWART HQ/J M BOYCE 32-Geological Sci

**NAGW 2900 University of Colorado - Boulder 2953**  
 THEORETICAL ANALYSIS OF SPECTRA OF SUPERNOVAE  
*Period Obligations*  
 02/19/1992-12/31/1993 FY93: \$60,000 TOTAL: \$125,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R MCCRAY HQ/R STACHNIK 11-Astronomy  
 ....E J WEILER

**NAGW 2904 University of Colorado - Boulder 2954**  
 ATMOSPHERIC DIAGNOSTICS AND MODELLING FOR STELLAR CHROMOSPHERES AND CORONAL  
*Period Obligations*  
 02/19/1992-12/31/1993 FY93: \$55,000 TOTAL: \$110,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A BROWN HQ/R STACHNIK 11-Astronomy  
 ....E J WEILER

**NAGW 2948 University of Colorado - Boulder 2955**  
 SEA ICE MOTIONS IN THE CENTRAL ARCTIC PACK ICE AS INFERRED FROM AVHRR IMAGERY  
*Period Obligations*  
 03/03/1992-12/31/1993 FY93: \$75,000 TOTAL: \$154,088  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 W EMERY HQ/R A SCHIFFER 33-Oceanography  
 J A MASLANIK ....D M BUTLER

**NAGW 2954 University of Colorado - Boulder 2956**  
 BIB PHOTOCONDUCTIVE MIXERS  
*Period Obligations*  
 03/03/1992-12/31/1993 FY93: \$53,000 TOTAL: \$156,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A L BETZ HQ/L J CAROFF 11-Astronomy

**NASA'S UNIVERSITY PROGRAM**  
**COLORADO (Continued)**

**NAGW 2968 University of Colorado - Boulder 2957**  
 MAGNETOTAIL MODELING AND SIMULATION: COMPARISON T O  
 OBSERVATIONS  
*Period* *Obligations*  
 03/20/1992-04/30/1994 FY93: \$66,789 TOTAL: \$134,547  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 I DOXAS HQ/M M MELLOTT 13-Physics  
 ....J D BOHLIN

**NAGW 2979 University of Colorado - Boulder 2958**  
 SPACE-TIME VARIABILITY OF TROPICAL CONVECTION  
*Period* *Obligations*  
 03/20/1992-03/31/1993 FY93: \$0 TOTAL: \$140,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 M L SALBY HQ/J C DODGE 31-Atmos Sci  
 ....R A SCHIFFER

**NAGW 2980 University of Colorado - Boulder 2959**  
 HELIOSEISMOLOGY AND CONVECTION ZONE DYNAMICS  
*Period* *Obligations*  
 03/10/1992-12/31/1992 FY93: \$0 TOTAL: \$65,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 J TOOMRE HQ/W J WAGNER 13-Physics  
 ....J D BOHLIN

**NAGW 2985 University of Colorado - Boulder 2960**  
 EFFECT OF GLACIAL AND POLAR ICE ON SPACE GEODETIC  
 OBSERVATIONS  
*Period* *Obligations*  
 03/16/1992-01/31/1994 FY93: \$19,089 TOTAL: \$36,469  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 J M WAHR HQ/R E MURPHY 32-Geological Sci  
 ....D M BUTLER

**NAGW 2994 University of Colorado - Boulder 2961**  
 ANALYSIS OF HRTS SPECTRA OF LYMAN ALPHA DURING A F LARE  
 AND AN ELLERMAN BOMB  
*Period* *Obligations*  
 03/20/1992-03/14/1993 FY93: \$0 TOTAL: \$19,824  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 K GAYLEY HQ/W J WAGNER 13-Physics  
 ....J D BOHLIN

**NAGW 2995 University of Colorado - Boulder 2962**  
 MICROWAVE SPECTROSCOPIC STDS OF PLANETARY ATMOSPHE  
 RE  
*Period* *Obligations*  
 03/20/1992-02/28/1994 FY93: \$55,000 TOTAL: \$106,317  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 R T CLANCY HQ/W L QUAIDE 11-Astronomy

**NAGW 3016 University of Colorado - Boulder 2963**  
 RELATIVE PROTONS AND THE HIGH-ENERGY SPECTRA OF AG NS  
*Period* *Obligations*  
 03/20/1992-03/31/1994 FY93: \$30,000 TOTAL: \$60,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 M C BEGELMAN HQ/L J KALUZIENSKI 11-Astronomy  
 ....A N BUNNER

**NAGW 3030 University of Colorado - Boulder 2964**  
 A DIGITAL ARCHIVAL SYSTEM FOR SOLAR IMAGES  
*Period* *Obligations*  
 04/03/1992-11/30/1992 FY93: \$0 TOTAL: \$17,900  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 A KIPLINGER HQ/W J WAGNER 13-Physics  
 ....J D BOHLIN

**NAGW 3034 University of Colorado - Boulder 2965**  
 THE CORE-MANTLE BOUNDARY AND THE ROTATION OF THE E  
 ARTH  
*Period* *Obligations*  
 04/03/1992-12/31/1993 FY93: \$37,000 TOTAL: \$72,550  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 J M WAHR HQ/R E MURPHY 32-Geological Sci  
 ....D M BUTLER

**NAGW 3047 University of Colorado - Boulder 2966**  
 ANALYSIS OF GLOBAL CLOUD IMAGERY FROM MULTIPLE SAT  
 ELLITES  
*Period* *Obligations*  
 04/17/1992-03/31/1994 FY93: \$100,000 TOTAL: \$250,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 M L SALBY HQ/J C DODGE 31-Atmos Sci  
 ....R A SCHIFFER

**NAGW 3177 University of Colorado - Boulder 2967**  
 ISO KEY PROJECT OBSERVATIONS  
*Period* *Obligations*  
 08/14/1992-05/31/1993 FY93: \$0 TOTAL: \$31,410  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 R E STENCEL HQ/L J CAROFF 11-Astronomy

**NAGW 3192 University of Colorado - Boulder 2968**  
 NAGW-3192/UNIV COLORADO/PULSATION, SHOCKS, MASS LOSS  
 AND DUST: ATMOSPHERES OF LONG PERIOD VARIABLES  
*Period* *Obligations*  
 09/17/1992-06/30/1994 FY93: \$89,690 TOTAL: \$188,211  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 E BRUGEL HQ/G R RIEGLER 11-Astronomy

**NAGW 3196 University of Colorado - Boulder 2969**  
 NAGW-3196/UNIV COLORADO/A DIRECTED SEARCH FOR  
 EXTRATERRESTRIAL LASER SIGNALS  
*Period* *Obligations*  
 08/21/1992-06/30/1994 FY93: \$76,200 TOTAL: \$151,700  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 A L BETZ HQ/J D RUMMEL 11-Astronomy

**NAGW 3224 University of Colorado - Boulder 2970**  
 NAGW-3224/UNIV COLORADO @ BOULDER/AUTOMATIC AVHRR  
 IMAGE NAVIGATION SOFTWARE  
*Period* *Obligations*  
 10/27/1992-10/14/1993 FY93: \$20,000 TOTAL: \$20,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 W EMERY HQ/M M MAIDEN 39-Env Sci, NEC  
 ....D M BUTLER

**NAGW 3261 University of Colorado - Boulder 2971**  
 ACCELERATED DEVELOPMENT OF AN SSM/I EARTH GRID AS A  
 CANDIDATE FOR THE SSM/I PATHFINDER BENCHMARK GRI  
*Period* *Obligations*  
 11/16/1992-10/31/1993 FY93: \$60,000 TOTAL: \$60,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 R ARMSTRONG HQ/M E MAIDEN 33-Oceanography  
 ....D M BUTLER

**NASA'S UNIVERSITY PROGRAM**  
**COLORADO (Continued)**

**NAGW 3271 University of Colorado - Boulder 2972**  
 MAGNETOSPHERIC AND SOLAR RADIATION EFFECTS ON THE NEPTUNIAN RINGS  
*Period* *Obligations*  
 11/13/1992-12/31/1993 FY93: \$61,716 TOTAL: \$61,716  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 M HORANYI HQ/J T BERGSTRAHL 19-Phys Sci, NEC

**NAGW 3530 University of Colorado - Boulder 2979**  
 AN INVESTIGATION OF THE MID. STR. OF GEO. STORM EFF. IN THE THEM. ION.  
*Period* *Obligations*  
 04/22/1993-02/28/1994 FY93: \$59,360 TOTAL: \$59,360  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 M CODRESCU HQ/M M MELLOTT 13-Physics  
 ....G L WITHBROE

**NAGW 3284 University of Colorado - Boulder 2973**  
 RESTORATION OF THE COLORADO SOLE MODEL JOBS SYSTEM  
*Period* *Obligations*  
 12/04/1992-07/31/1993 FY93: \$5,000 TOTAL: \$5,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 T R AYRES HQ/L S LAPIANA 11-Astronomy  
 ....G P NEWTON

**NAGW 3554 University of Colorado - Boulder 2980**  
 TOWARD A THEORY OF BROAD ABSORPTION LINE QUASARS  
*Period* *Obligations*  
 04/29/1993-03/31/1994 FY93: \$30,000 TOTAL: \$30,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 M C BEGELMAN HQ/H R MILLER 11-Astronomy  
 ....E J WEILER

**NAGW 3355 University of Colorado - Boulder 2974**  
 NAGW-3355/UNIV COLORADO @ BOULDER/DUST PLASMA INTERACTION  
*Period* *Obligations*  
 01/27/1993-02/28/1994 FY93: \$78,460 TOTAL: \$78,460  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 M HORANYI HQ/E C WHIPPLE 13-Physics  
 ....G WITHROE

**NAGW 3584 University of Colorado - Boulder 2981**  
 THEORETICAL STUDIES OF THE DISTRIBUTION AND EVALUATION OF WATER IN THE ATMOSPHERE OF VENUS  
*Period* *Obligations*  
 05/12/1993-05/14/1994 FY93: \$50,000 TOTAL: \$50,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 D H GRINSPOON HQ/M C BRINTON 19-Phys Sci, NEC

**NAGW 3370 University of Colorado - Boulder 2975**  
 AN ULTRAVIOLET IMAGING SPECTROMETER FOR THE PLUTO/CHARO MISSION  
*Period* *Obligations*  
 02/05/1993-03/31/1994 FY93: \$117,248 TOTAL: \$117,248  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 W A MCCLINTOCK HQ/H C BRINTON 19-Phys Sci, NEC

**NAGW 3593 University of Colorado - Boulder 2982**  
 HIGH RESOLUTION SPECTROSCOPY WITH HOLOGRAPHIC GRATINGS  
*Period* *Obligations*  
 05/20/1993-12/31/1993 FY93: \$45,000 TOTAL: \$45,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 J C GREEN HQ/R STACHNIK 11-Astronomy  
 ....E WEILER

**NAGW 3437 University of Colorado - Boulder 2976**  
 ICE SUR. TEMP. RETR. FR. AVHRR, ATSR, AND PASS. MICR. SATE. DATA;ALG. DEVE. AND APPL.  
*Period* *Obligations*  
 03/10/1993-03/31/1994 FY93: \$72,651 TOTAL: \$72,651  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 J KEY HQ/R H THOMAS 39-Env Sci, NEC  
 J MASLANIK ....R A SCHIFFER

**NAGW 3600 University of Colorado - Boulder 2983**  
 COMPARISON OF INTERPLANETARY AND INTERSTELLAR GRAIN SIZE DISTRIBUTIONS  
*Period* *Obligations*  
 06/09/1993-05/31/1994 FY93: \$15,914 TOTAL: \$15,914  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 T P SNOW HQ/J A NUTH III 19-Phys Sci, NEC

**NAGW 3482 University of Colorado - Boulder 2977**  
 UNIV COLORADO BOULDER/EVOLUTION OF THE ATMOSPHERE AND SURFACE OF VENUS  
*Period* *Obligations*  
 04/08/1993-03/31/1994 FY93: \$40,000 TOTAL: \$40,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 D H GRINSPOON HQ/J T BERGSTRAHL 31-Atmos Sci

**NAGW 3609 University of Colorado - Boulder 2984**  
 REMOTE SENSING OF MARTIAN AEROSOLS  
*Period* *Obligations*  
 05/26/1993-05/31/1994 FY93: \$35,000 TOTAL: \$35,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 L W ESPOSITO HQ/J T BERGSTRAHL 31-Atmos Sci

**NAGW 3485 University of Colorado - Boulder 2978**  
 INVESTIGATION OF DYNAMICAL AND CHEMICAL BEHAVIOR OF THE LOWER STRATOSPHERE AND INTERACTIONS  
*Period* *Obligations*  
 06/16/1993-05/31/1994 FY93: \$110,000 TOTAL: \$110,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 M L SALBY HQ/J A KAYE 31-Atmos Sci

**NAGW 3667 University of Colorado - Boulder 2985**  
 EXPLORATIONS IN SCIENCE AND ASTRONOMY EDUCATION  
*Period* *Obligations*  
 06/25/1993-04/14/1994 FY93: \$148,997 TOTAL: \$148,997  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 J BENNETT HQ/C MORROW 11-Astronomy  
 ....G P NEWTON

**NAS 5-27263 University of Colorado - Boulder 2986**  
 PERFORM A STUDY OF THE RESPONSE OF UPPER ATMOSPHERE PARAMETERS TO VARIATIONS IN SOLAR ACTIVITY  
*Period* *Obligations*  
 07/07/1982-04/01/1994 FY93: \$165,000 TOTAL: \$816,857  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 J LONDON GSFC/C REBER 31-Atmos Sci

**NASA'S UNIVERSITY PROGRAM**  
**COLORADO (Continued)**

**NAS 5-27750 University of Colorado - Boulder 2987**  
 DELIVER A PROTOFLIGHT SOLSTICE INSTRUMENT FOR THE UARS  
*Period Obligations*  
 09/26/1983-06/30/1994 FY93: \$230,000 TOTAL: \$10,282,350  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 G ROTTMAN GSFC/N PETERSKI 31-Atmos Sci  
 ....J DONLEY

**NAS 5-28731 University of Colorado - Boulder 2988**  
 OPERATION OF THE REGIONAL DATA CENTER FOR IUE USERS  
*Period Obligations*  
 04/01/1985-09/30/1992 FY93: \$0 TOTAL: \$937,356  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 E W BRUGEL GSFC/D K WEST 11-Astronomy

**NAS 5-30552 University of Colorado - Boulder 2989**  
 HIRIS TEAM STUDY  
*Period Obligations*  
 06/30/1989-02/14/1992 FY93: \$0 TOTAL: \$683,455  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A F GOETZ GSFC/W BARNES 32-Geological Sci

**NAS 5-30683 University of Colorado - Boulder 2990**  
 SOLAR STELLAR IRRADIANCE COMPARISON  
*Period Obligations*  
 07/31/1989-09/01/1992 FY93: \$0 TOTAL: \$1,250,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 G G ROTTMAN GSFC/J MCGUIRE 13-Physics

**NAS 5-31355 University of Colorado - Boulder 2991**  
 COMPUTER RESEARCH  
*Period Obligations*  
 07/10/1991-07/09/1994 FY93: \$10,240 TOTAL: \$164,760  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 E HANSEN GSFC/H BURRITT 22-Computer Science  
 ....J BREDEKAMP

**NAS 5-31711 University of Colorado - Boulder 2992**  
 EOS INVESTIGATION: HIGH-RESOLUTION IMAGING SPECTROMETER  
 (HIRIS)-TEAM LEADER  
*Period Obligations*  
 02/24/1992-12/14/2001 FY93: \$350,000 TOTAL: \$923,545  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A GOETZ GSFC/H BLODGET 31-Atmos Sci

**NAS 5-31715 University of Colorado - Boulder 2993**  
 HIGH RESOLUTION IMAGING SPECTROMETER (HIRIS)  
 INVESTIGATION  
*Period Obligations*  
 01/14/1992-12/12/2001 FY93: \$200,000 TOTAL: \$410,036  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 C WESSMAN GSFC/T BRAKE 31-Atmos Sci

**NAS 5-31860 University of Colorado - Boulder 2994**  
 RESEARCH SOFTWARE DEVELOPMENT UNDER NRA  
 91-OSSA-19ALLY BROWSE NASA ADP PROGRAM.  
*Period Obligations*  
 09/30/1992-09/29/1995 FY93: \$175,000 TOTAL: \$175,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 B DOMIK GSFC/R J OLIVERSON 11-Astronomy

**NAS 5-32392 University of Colorado - Boulder 2995**  
 OPERATION OF SNOW AND ICE DISTRIBUTED ACTIVE ARCHIVE  
 CENTER.  
*Period Obligations*  
 04/19/1993-01/31/1998 FY93: \$1,538,000 TOTAL: \$1,538,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R G BARRY GSFC/G HUNOLT 42-Astro Engr

**NAS 5-32568 University of Colorado - Boulder 2996**  
 PHASE B-INVESTIGATION - TIMED INSTRUMENT - TONE  
*Period Obligations*  
 09/15/1993-09/30/1994 FY93: \$125,000 TOTAL: \$125,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D W RUSCH GSFC/B CAMPBELL 31-Atmos Sci

**NAS 5-33042 University of Colorado - Boulder 2997**  
 FABRICATION OF CODACON DETECTORS FOR FLIGHT ON ISTP  
*Period Obligations*  
 12/29/1989-11/15/1992 FY93: \$19,400 TOTAL: \$939,723  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 G LAWRENCE GSFC/K W OGILVIE 41-Aero Engr

**NAS 8-31958 University of Colorado - Boulder 2998**  
 STUDY OF GEOPHYSICAL FLUID DYNAMICS WITH ELECTRO -  
 HYDRODYNAMICS POLARIZATION FORCES.  
*Period Obligations*  
 03/26/1976-09/30/1996 FY93: \$397,000 TOTAL: \$2,639,437  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J E HART MSFC/G HALL 31-Atmos Sci  
 J TOOMRE ....G H FICHTL

**NAS 8-38779 University of Colorado - Boulder 2999**  
 MECHANICS OF GRANULAR MATERIALS MICROGRAVITY  
*Period Obligations*  
 09/24/1992-09/30/1997 FY93: \$116,200 TOTAL: \$266,200  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S STURE MSFC/G E HALL 47-Materials Engr

**NAS 8-39205 University of Colorado - Boulder 3000**  
 R/S 'HF STUDIES OF MESOSPHERIC WIND AND DENSITY  
 FLUCTUATIONS IN HAWAII  
*Period Obligations*  
 01/24/1992-07/23/1992 FY93: \$0 TOTAL: \$50,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D C FRITTS MSFC/D JOHNSON 31-Atmos Sci

**NCA 2-713 University of Colorado - Boulder 3001**  
 RESEARCH ON PLANT GROWTH SYSTEM SUPPORT DURING LONG-  
 TERM SPACEFLIGHT  
*Period Obligations*  
 04/17/1992-04/15/1994 FY93: \$0 TOTAL: \$39,920  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M W LUTTGES ARC/M KLISS 51-Biological Sci  
 ....R D MACELROY

**NCA 2-759 University of Colorado - Boulder 3002**  
 COMMERCIAL ANIMAL BIOTECHNOLOGY SPACE FLIGHTS  
*Period Obligations*  
 10/28/1992-10/31/1993 FY93: \$25,000 TOTAL: \$25,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M LUTTGES ARC/D GOLDWATER 56-Medical Sciences

**NASA'S UNIVERSITY PROGRAM**  
**COLORADO (Continued)**

**NCA 2-788 University of Colorado - Boulder 3003**  
 DESIGN AND FABRICATION OF HIGH-SPEED METAL-SEMICONDUCTOR-METAL PHOTODETECTOR FOR PLANT CANOPY ARCHITECTURE  

Period	Obligations	
02/05/1993-02/14/1994	FY93: \$14,929	TOTAL: \$14,929
Prin. Invest.	NASA Tech. Officer	CASE Category
B J VANZEGHHBROECK	ARC/V C VANDERBILT	45-Elec Engr

**NCA 2-823 University of Colorado - Boulder 3004**  
 CHLORINE ABUNDANCE IN THE LOWER ATMOSPHERE OF VENUS  

Period	Obligations	
06/03/1993-10/31/1993	FY93: \$12,990	TOTAL: \$12,990
Prin. Invest.	NASA Tech. Officer	CASE Category
D H GRINSPOON	ARC/J B POLLACK	31-Atmos Sci

**NCC 1-143 University of Colorado - Boulder 3005**  
 A STUDY OF THE VARIATION OF NITROGEN DIOXIDE USING SME AND SAGE DATA.  

Period	Obligations	
06/07/1990-12/31/1993	FY93: \$0	TOTAL: \$150,001
Prin. Invest.	NASA Tech. Officer	CASE Category
D W RUSCH	LARC/J M ZAWODNY	31-Atmos Sci
G E THOMAS		

**NCC 2-714 University of Colorado - Boulder 3006**  
 ANALYSIS OF THE HARRIER FOREBODY/INLET DESIGN USING NUMERICAL COMPUTATIONAL TECHNIQUES  

Period	Obligations	
05/20/1991-08/31/1993	FY93: \$0	TOTAL: \$80,791
Prin. Invest.	NASA Tech. Officer	CASE Category
C Y CHOW	ARC/M W STORTZ	41-Aero Engr
	....W J CHYU	

**NCC 3-168 University of Colorado - Boulder 3007**  
 NUMERICAL STUDY OF COMPRESSIBLE BOUNDARY-LAYER TRANSITION BETWEEN TWO CONCENTRIC CYLINDERS  

Period	Obligations	
03/16/1990-10/31/1993	FY93: \$0	TOTAL: \$176,627
Prin. Invest.	NASA Tech. Officer	CASE Category
C Y CHOW	LERC/M S LIOU	41-Aero Engr

**NCC 3-210 University of Colorado - Boulder 3008**  
 FLUID DYNAMICS AND SOLIDIFICATION OF METALLIC MELTS: SURFACE TENSION GRADIENT EFFECTS  

Period	Obligations	
03/06/1991-03/21/1994	FY93: \$86,000	TOTAL: \$258,000
Prin. Invest.	NASA Tech. Officer	CASE Category
J KOSTER	LERC/F P CHIARAMONTE	47-Materials Engr

**NCC 3-272 University of Colorado - Boulder 3009**  
 OFF AXIS DRAG OF DENDRITE FRAGMENTS AT LOW REYNOLDS NUMBER  

Period	Obligations	
07/15/1992-08/31/1994	FY93: \$2,203	TOTAL: \$28,199
Prin. Invest.	NASA Tech. Officer	CASE Category
P D WEIDMAN	LERC/H C DEGROH	47-Materials Engr
	....T GLASGOW	

**NGT 00-030-023 University of Colorado - Boulder 3010**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  

Period	Obligations	
11/20/1990-08/31/1993	FY93: \$0	TOTAL: \$66,000
Prin. Invest.	NASA Tech. Officer	CASE Category
S D PECKHAM	HQ/G ASRAR	39-Env Sci, NEC

**NGT 00-030-060 University of Colorado - Boulder 3011**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  

Period	Obligations	
09/16/1991-08/31/1994	FY93: \$22,000	TOTAL: \$66,000
Prin. Invest.	NASA Tech. Officer	CASE Category
L CHEN	HQ/D M BUTLER	31-Atmos Sci
J LONDON	....G S WILSON	

**NGT 00-030-094 University of Colorado - Boulder 3012**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  

Period	Obligations	
09/23/1991-08/31/1992	FY93: \$0	TOTAL: \$22,000
Prin. Invest.	NASA Tech. Officer	CASE Category
F SIGMUNDSSON	HQ/D M BUTLER	39-Env Sci, NEC
R BILHAM	....G S WILSON	

**NGT 00-030-095 University of Colorado - Boulder 3013**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  

Period	Obligations	
09/06/1991-08/31/1993	FY93: \$0	TOTAL: \$44,000
Prin. Invest.	NASA Tech. Officer	CASE Category
T SEASTEDT	HQ/D BUTLER	39-Env Sci, NEC

**NGT 00-030-097 University of Colorado - Boulder 3014**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  

Period	Obligations	
10/21/1992-08/31/1993	FY93: \$22,000	TOTAL: \$22,000
Prin. Invest.	NASA Tech. Officer	CASE Category
A ALAM	HQ/G ASRAR	39-Env Sci, NEC
J CURRY	....J S THEON	

**NGT 00-030-102 University of Colorado - Boulder 3015**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  

Period	Obligations	
10/30/1992-08/31/1994	FY93: \$44,000	TOTAL: \$44,000
Prin. Invest.	NASA Tech. Officer	CASE Category
T P HARTSELL	HQ/G ASRAR	31-Atmos Sci
	....D M BUTLER	

**NGT 00-030-131 University of Colorado - Boulder 3016**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  

Period	Obligations	
10/21/1992-08/31/1994	FY93: \$44,000	TOTAL: \$44,000
Prin. Invest.	NASA Tech. Officer	CASE Category
M J MILLS	HQ/G ASRAR	33-Oceanography
	....D M BUTLER	

**NGT 00-030-132 University of Colorado - Boulder 3017**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  

Period	Obligations	
10/21/1992-08/31/1994	FY93: \$44,000	TOTAL: \$44,000
Prin. Invest.	NASA Tech. Officer	CASE Category
A M MIDDLEBROOK	HQ/G ASRAR	33-Oceanography
	....D M BUTLER	

**NASA'S UNIVERSITY PROGRAM**  
**COLORADO (Continued)**

**NGT 00-030-133 University of Colorado - Boulder 3018**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
 10/30/1992-08/31/1994 FY93: \$44,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R VILLALBA HQ/G ASRAR 39-Env Sci, NEC  
 ....D M BUTLER

**NGT 00-040-008 University of Colorado - Boulder 3026**  
 NATIONAL SPACE GRANT COLLEGE AND FELLOWSHIP PROGRAM  
*Period Obligations*  
 10/19/1989-01/31/1994 FY93: \$383,000 TOTAL: \$1,488,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 E R HANSEN HQ/E T SCHWARTZ 99-Multi-Discip

**NGT 00-030-139 University of Colorado - Boulder 3019**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
 10/30/1992-08/31/1994 FY93: \$44,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R J GOSNELL HQ/G ASRAR 99-Multi-Discip  
 ....D M BUTLER

**NGT 00-050-329 University of Colorado - Boulder 3027**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 07/19/1988-08/31/1992 FY93: \$0 TOTAL: \$80,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 G W ROSBOROUGH HQ/F C OWENS 41-Aero Engr

**NGT 00-030-175 University of Colorado - Boulder 3020**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
 08/23/1993-08/31/1996 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A F GOETZ HQ/G ASRAR 32-Geological Sci  
 ....D M BUTLER

**NGT 00-050-336 University of Colorado - Boulder 3028**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 07/22/1988-08/31/1992 FY93: \$0 TOTAL: \$80,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 G H BORN HQ/F C OWENS 41-Aero Engr

**NGT 00-030-187 University of Colorado - Boulder 3021**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
 08/23/1993-08/31/1996 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M SALBY HQ/G ASRAR 31-Atmos Sci  
 ....D M BUTLER

**NGT 00-050-367 University of Colorado - Boulder 3029**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 08/08/1988-12/31/1991 FY93: \$5 TOTAL: \$57,995  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R H DAVIS HQ/F C OWENS 43-Chem Engr

**NGT 00-030-205 University of Colorado - Boulder 3022**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
 08/23/1993-08/31/1996 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D J HOFMANN HQ/G ASRAR 31-Atmos Sci  
 ....D M BUTLER

**NGT 00-050-446 University of Colorado - Boulder 3030**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 08/14/1989-05/31/1992 FY93: \$0 TOTAL: \$62,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S BIRINGEN HQ/F C OWENS 43-Chem Engr

**NGT 00-030-206 University of Colorado - Boulder 3023**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
 08/23/1993-08/31/1996 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A R RAVISHANKARA HQ/G ASRAR 31-Atmos Sci  
 ....D M BUTLER

**NGT 00-050-465 University of Colorado - Boulder 3031**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 08/10/1989-08/30/1992 FY93: \$0 TOTAL: \$62,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 W W HAY HQ/F C OWENS 32-Geological Sci

**NGT 00-030-207 University of Colorado - Boulder 3024**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
 08/23/1993-08/31/1996 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 G H BORN HQ/G ASRAR 39-Env Sci, NEC

**NGT 00-050-483 University of Colorado - Boulder 3032**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 07/31/1989-02/28/1992 FY93: \$0 TOTAL: \$62,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 C D GARMANY HQ/F C OWENS 13-Physics

**NGT 00-030-210 University of Colorado - Boulder 3025**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
 08/23/1993-08/31/1996 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R K MONSON HQ/G ASRAR 39-Env Sci, NEC  
 ....D M BUTLER

**NGT 00-050-515 University of Colorado - Boulder 3033**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 09/06/1989-02/28/1993 FY93: \$0 TOTAL: \$62,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 T P SNOW HQ/F C OWENS 13-Physics



**NASA'S UNIVERSITY PROGRAM**  
**COLORADO (Continued)**

**NGT 00-050-518 University of Colorado - Boulder 3034**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 09/28/1989-12/31/1992 FY93: \$0 TOTAL: \$61,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 W BLUMEN HQ/F C OWENS 31-Atmos Sci

**NGT 00-050-592 University of Colorado - Boulder 3035**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 07/24/1990-08/24/1993 FY93: \$0 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 K M JOHNSON HQ/F C OWENS 45-Elec Engr

**NGT 00-050-623 University of Colorado - Boulder 3036**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 07/26/1990-08/30/1992 FY93: \$0 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 G BORN HQ/F C OWENS 13-Physics

**NGT 00-050-660 University of Colorado - Boulder 3037**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 09/11/1990-08/31/1994 FY93: \$0 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 T P SNOW HQ/F C OWENS 13-Physics

**NGT 00-050-678 University of Colorado - Boulder 3038**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 08/09/1990-06/30/1993 FY93: \$0 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R CHASE HQ/F C OWENS 41-Aero Engr

**NGT 00-050-692 University of Colorado - Boulder 3039**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 09/12/1991-07/31/1994 FY93: \$33,000 TOTAL: \$77,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 G H BORN HQ/F C OWENS 41-Aero Engr

**NGT 00-050-709 University of Colorado - Boulder 3040**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 08/16/1991-07/31/1994 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M M MIKULAS HQ/F C OWENS 42-Astro Engr

**NGT 00-050-728 University of Colorado - Boulder 3041**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 08/16/1991-07/27/1994 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A F GOETZ HQ/F C OWENS 19-Phys Sci, NEC

**NGT 00-050-759 University of Colorado - Boulder 3042**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 09/20/1991-06/30/1994 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 G BORN HQ/F C OWENS 42-Astro Engr

**NGT 00-050-761 University of Colorado - Boulder 3043**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 09/20/1991-06/30/1994 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 G ROSBOROUGH HQ/F C OWENS 42-Astro Engr

**NGT 00-050-809 University of Colorado - Boulder 3044**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 08/16/1991-08/31/1994 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 P S CONTI HQ/J ALEXANDER 11-Astronomy

**NGT 00-050-813 University of Colorado - Boulder 3045**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 08/16/1991-08/31/1994 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 W C CASH HQ/F C OWENS 11-Astronomy

**NGT 00-050-872 University of Colorado - Boulder 3046**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 05/15/1992-08/16/1994 FY93: \$22,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R CULP JSC/S GOLDSTEIN 41-Aero Engr

**NGT 00-050-887 University of Colorado - Boulder 3047**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 04/28/1992-06/30/1994 FY93: \$22,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 G H BAM JPL/H ASHKENAS 41-Aero Engr

**NGT 00-050-899 University of Colorado - Boulder 3048**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 08/28/1992-06/30/1994 FY93: \$22,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R A MCCRAY GSFC/G SOFFEN 13-Physics

**NGT 00-050-909 University of Colorado - Boulder 3049**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 05/29/1992-06/30/1994 FY93: \$22,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J T STOCKE HQ/J ALEXANDER 31-Atmos Sci

**NASA'S UNIVERSITY PROGRAM**  
**COLORADO (Continued)**

**NGT 00-050-915 University of Colorado - Boulder 3050**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 06/30/1992-06/30/1994 FY93: \$22,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 W HAY HQ/J ALEXANDER 33-Oceanography

**NGT 00-051-034 University of Colorado - Boulder 3058**  
 GRADUATE STUDENT RESEARCHERS (UMF) PROGRAM  
*Period Obligations*  
 07/07/1993-06/30/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D E SMITH GSFC/G SOFFEN 41-Aero Engr

**NGT 00-050-916 University of Colorado - Boulder 3051**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 06/29/1992-06/30/1994 FY93: \$22,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 F BAGENAL HQ/J ALEXANDER 13-Physics

**NGT 00-051-040 University of Colorado - Boulder 3059**  
 GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 05/05/1993-06/30/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R R LEBEN JPL/C HIX 41-Aero Engr

**NGT 00-050-923 University of Colorado - Boulder 3052**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 06/22/1992-06/30/1994 FY93: \$22,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M TOLBERT HQ/J ALEXANDER 12-Chemistry

**NGT 00-051-091 University of Colorado - Boulder 3060**  
 GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 05/25/1993-06/30/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 N M SCHNEIDER HQ/D HOLLAND 11-Astronomy

**NGT 00-050-934 University of Colorado - Boulder 3053**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 08/18/1992-08/31/1994 FY93: \$22,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 G ROSBOROUGH GSFC/G SOFFEN 42-Astro Engr

**NGT 00-051-128 University of Colorado - Boulder 3061**  
 GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 07/14/1993-08/22/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R LEBEN HQ/G LESANE 41-Aero Engr

**NGT 00-050-954 University of Colorado - Boulder 3054**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 08/11/1992-06/30/1994 FY93: \$22,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 L D PETERSON MSFC/F SIX 41-Aero Engr

**NGT 00-051-135 University of Colorado - Boulder 3062**  
 GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 07/19/1993-08/31/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M A TOLBERT HQ/G LESANE 12-Chemistry

**NGT 00-050-955 University of Colorado - Boulder 3055**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 01/01/1992-06/30/1994 FY93: \$22,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 W C CASH HQ/J K ALEXANDER 13-Physics

**NGT 00-051-141 University of Colorado - Boulder 3063**  
 GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 07/13/1993-06/31/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 G BORN HQ/G LESANE 41-Aero Engr

**NGT 00-050-958 University of Colorado - Boulder 3056**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 06/17/1992-08/19/1994 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 E ZWEIBEL HQ/J K ALEXANDER 13-Physics

**NGT 00-051-179 University of Colorado - Boulder 3064**  
 GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 09/02/1993-06/30/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J N KOSTER MSFC/B SWINFORD 41-Aero Engr

**NGT 00-050-985 University of Colorado - Boulder 3057**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 07/24/1992-07/31/1994 FY93: \$22,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S BIRINGEN LARC/E PRIOR 41-Aero Engr

**NGT 00-070-089 University of Colorado - Boulder 3065**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
 MINORITY FOCUS PROGRAM  
*Period Obligations*  
 08/08/1988-08/31/1992 FY93: \$0 TOTAL: \$80,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M W LUTTGES HQ/F C OWENS 41-Aero Engr

**NASA'S UNIVERSITY PROGRAM  
COLORADO (Continued)**

**NGT 00-070-220 University of Colorado - Boulder 3066**  
NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
MINORITY FOCUS PROGRAM

Period	Obligations	
06/04/1991-06/30/1993	FY93: \$0	TOTAL: \$44,000
Prin. Invest.	NASA Tech. Officer	CASE Category
J T STOCKE	HQ/F C OWENS	13-Physics

**NSG-5303 University of Colorado - Boulder 3073**  
ULTRAVIOLET MEASUREMENTS WITH HIGH SPECTRAL  
RESOLUTION

Period	Obligations	
09/15/1978-11/30/1993	FY93: \$484,200	TOTAL: \$5,002,889
Prin. Invest.	NASA Tech. Officer	CASE Category
T P SNOW JR.	GSFC/L J EARLY	11-Astronomy
W E MCCLINTOCK	....R H PLESS	
W C CASH		

**NGT 00-070-242 University of Colorado - Boulder 3067**  
NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
MINORITY FOCUS PROGRAM

Period	Obligations	
06/25/1991-06/30/1994	FY93: \$22,000	TOTAL: \$66,000
Prin. Invest.	NASA Tech. Officer	CASE Category
M W LUTTGES	HQ/F C OWENS	41-Aero Engr

**NSG-7511 University of Colorado - Boulder 3074**  
ENERGY TRANSPORT IN THE SOLAR ENVELOPE AND  
ATMOSPHERE

Period	Obligations	
10/01/1978-08/31/1992	FY93: \$0	TOTAL: \$1,182,576
Prin. Invest.	NASA Tech. Officer	CASE Category
J TOOMRE	HQ/D S SPICER	13-Physics
K GEBBIE	....J D BOHLIN	

**NGT 00-070-266 University of Colorado - Boulder 3068**  
NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
MINORITY FOCUS PROGRAM

Period	Obligations	
05/15/1992-06/30/1994	FY93: \$22,000	TOTAL: \$44,000
Prin. Invest.	NASA Tech. Officer	CASE Category
G W ROSBOROUGH	HQ/D K RUSSELL	41-Aero Engr

**NAG 1-1444 University of Colorado - Denver 3075**  
ADAPTIVE CONTROL STRATEGIES FOR FLEXIBLE ROBOTIC ARM

Period	Obligations	
07/13/1992-07/14/1994	FY93: \$28,689	TOTAL: \$44,639
Prin. Invest.	NASA Tech. Officer	CASE Category
J T BIALASIEWICZ	LARC/D I SOLOWAY	45-Elec Engr

**NGT 00-070-291 University of Colorado - Boulder 3069**  
NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
MINORITY FOCUS PROGRAM

Period	Obligations	
07/01/1992-06/30/1994	FY93: \$22,000	TOTAL: \$44,000
Prin. Invest.	NASA Tech. Officer	CASE Category
C E FOSHA	HQ/J T LYNCH	45-Elec Engr

**NAG 1-1537 University of Colorado - Denver 3076**  
IMPLICIT AND MULTIGRID DIRECT NUMERICAL SIMULATION OF  
BOUNDARY-LAYER TRANSITION AND 3-D GENERAL GEO

Period	Obligations	
07/28/1993-07/27/1994	FY93: \$36,983	TOTAL: \$36,983
Prin. Invest.	NASA Tech. Officer	CASE Category
C LIU	LARC/R D JOSLIN	41-Aero Engr

**NGT 00-070-301 University of Colorado - Boulder 3070**  
NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
MINORITY FOCUS PROGRAM

Period	Obligations	
11/27/1992-07/31/1995	FY93: \$44,000	TOTAL: \$44,000
Prin. Invest.	NASA Tech. Officer	CASE Category
D G MEYER	LERC/F MONTEGRANI	45-Elec Engr

**NAG 9-384 University of Colorado - Denver 3077**  
PEPTIDE HORMONE RECEPTOR REGULATION ON HUMAN  
PERIPHERAL BLOOD MONONUCLEAR CELLS

Period	Obligations	
07/01/1989-01/01/1993	FY93: \$0	TOTAL: \$169,500
Prin. Invest.	NASA Tech. Officer	CASE Category
R MEEHAN	JSC/C SAMS	56-Medical Sciences

**NSG-5103 University of Colorado - Boulder 3071**  
ROCKET RESEARCH IN THE ULTRAVIOLET AIRGLOW AND AURORA  
OF PLANETARY ATMOSPHERE

Period	Obligations	
02/01/1976-03/31/1994	FY93: \$0	TOTAL: \$3,987,407
Prin. Invest.	NASA Tech. Officer	CASE Category
C A BARTH	GSFC/L J EARLY	19-Phys Sci, NEC
D D HATHAWAY	....R H PLESS	

**NAG 9-550 University of Colorado - Denver 3078**  
STRESS RELATED IMMUNE MODULATION IN FIRST YEAR US AIR  
FORCE ACADEMY CADETS

Period	Obligations	
09/25/1991-10/01/1992	FY93: \$0	TOTAL: \$58,351
Prin. Invest.	NASA Tech. Officer	CASE Category
R T MEEHAN	JSC/C F SAMS	56-Medical Sciences
	....D L PIERSON	

**NSG-5300 University of Colorado - Boulder 3072**  
RESEARCH OF STELLAR WIND VARIABILITY IN ALPHA CAM USING  
ULTRAVIOLET DATA FROM IUE

Period	Obligations	
09/15/1978-08/31/1993	FY93: \$0	TOTAL: \$824,465
Prin. Invest.	NASA Tech. Officer	CASE Category
T P SNOW JR	GSFC/D WEST	11-Astronomy
C L JOSEPH		
E B JENKINS		

**NGT 00-050-403 University of Colorado - Denver 3079**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM

Period	Obligations	
09/21/1989-08/31/1992	FY93: \$0	TOTAL: \$62,000
Prin. Invest.	NASA Tech. Officer	CASE Category
S F MCCORMICK	HQ/F C OWENS	21-Mathematics

**NASA'S UNIVERSITY PROGRAM**  
**COLORADO (Continued)**

**NAG 1-1336 University of Denver 3080**  
 UNIVERSITY OF DENVER CORRELATIVE MEASUREMENTS IN  
 SUPPORT OF THE UARS  
*Period* *Obligations*  
 09/04/1991-12/31/1993 FY93: \$226,983 TOTAL: \$697,523  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 D G MURCRAY LARC/J G WELLS 31-Atmos Sci  
 H E ROCHE

**NAGW 3680 University of Denver 3087**  
 ISO OBSERVATIONS OF CIRCUMSTELLAR DISKS: CLUES TO THE  
 BIRTH AND DEATH OF PLANETS  
*Period* *Obligations*  
 08/03/1993-05/31/1994 FY93: \$31,261 TOTAL: \$31,261  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 R E STENCEL HQ/L J CAROFF 11-Astronomy

**NAG 1-1450 University of Denver 3081**  
 PLATE WAVE ACOUSTIC EMISSION IN COMPOSITE MATERIALS NLPN  
 92-803  
*Period* *Obligations*  
 08/28/1992-08/27/1993 FY93: \$0 TOTAL: \$83,040  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 M R GORMAN LARC/W H PROSSER 47-Materials Engr

**NAS 5-29311 University of Denver 3088**  
 MEASUREMENT OF X-RAYS AND INTERGETIC ELECTRONS IN VLF  
 TRIGGER EXPERIMENTS  
*Period* *Obligations*  
 01/28/1986-01/27/1994 FY93: \$0 TOTAL: \$138,975  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 F WHITE GSFC/R GOLDBERG 11-Astronomy

**NAG 2-351 University of Denver 3082**  
 INFRARED MEASUREMENTS OF ATMOSPHERIC CONSTITUENTS  
*Period* *Obligations*  
 06/01/1985-12/31/1993 FY93: \$348,068 TOTAL: \$3,241,755  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 D G MURCRAY ARC/S WEGENER 31-Atmos Sci

**NCC 1-48 University of Denver 3089**  
 COLLABORATIVE STUDY OF HIGH RESOLUTION INFRARED  
 ATMOSPHERIC SPECTRA  
*Period* *Obligations*  
 11/26/1980-11/30/1994 FY93: \$46,000 TOTAL: \$457,910  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 A GOLDMAN LARC/C P RINGLAND 31-Atmos Sci  
 D G MURCRAY ....R K SEALS

**NAG 2-458 University of Denver 3083**  
 COUNTING CONDENSATION NUCLEI IN THE ANARTIC OZONE  
 MISSION  
*Period* *Obligations*  
 05/01/1987-12/31/1993 FY93: \$150,000 TOTAL: \$816,573  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 J C WILSON ARC/S S WEGENER 31-Atmos Sci  
 ....B C CONDON

**NCC 2-666 University of Denver 3090**  
 COUNTING PARTICLES EMITTED BY ATRATOSPHERIC AIRCR AFT  
 AND MEASURING SIZE OF PARTICLES EMITTED BY ....  
*Period* *Obligations*  
 04/20/1990-12/31/1992 FY93: \$0 TOTAL: \$99,068  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 J C WILSON ARC/E P CONDON 99-Multi-Discip  
 M R STOLZENBURG ....O B TOON

**NAG 2-737 University of Denver 3084**  
 THE STRATEGIC ORGANIZATION OF SKILL  
*Period* *Obligations*  
 09/27/1991-08/31/1993 FY93: \$0 TOTAL: \$61,090  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 R J ROBERTS ARC/R J SHIVELY 69-Psych, NEC  
 ....S G HART

**NCC 2-739 University of Denver 3091**  
 DETECTION AND ANALYSIS OF AIRCRAFT-PRODUCED PARTICL ES  
 IN THE STRATOSPHERE: INSTRUMENT DEVELOPMENT  
*Period* *Obligations*  
 11/26/1991-12/31/1992 FY93: \$0 TOTAL: \$184,748  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 J C WILSON ARC/E P CONDON 31-Atmos Sci  
 C A BROCK

**NAG 5-2094 University of Denver 3085**  
 ROSAT TARGET OF OPPORTUNITY OBSERVATIONS: AG DRAC ONIS  
 IN OUTBURST  
*Period* *Obligations*  
 09/15/1992-09/14/1994 FY93: \$31,000 TOTAL: \$31,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 R E STENCEL HQ/R PETRE 11-Astronomy

**NCC 2-776 University of Denver 3092**  
 DETECTION AND ANALYSIS OF AIRCRAFT-PRODUCED PARTICLE S  
 DURING THE STRATOSPHERIC, PHOTOCHEMISTRY.....  
*Period* *Obligations*  
 11/20/1992-08/31/1993 FY93: \$144,351 TOTAL: \$144,351  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 J C WILSON ARC/E P CONDON 31-Atmos Sci  
 ....O B TOON

**NAG 5-2103 University of Denver 3086**  
 FIFTEENTH EPISODE MONITORING OF LONG PERIOD ECLIPS ING  
 SYSTEMS AND INTERSYSTEM C II LINES . . . .  
*Period* *Obligations*  
 10/08/1992-01/31/1994 FY93: \$27,720 TOTAL: \$27,720  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 R E STENCEL GSFC/D WEST 11-Astronomy

**NCC 2-782 University of Denver 3093**  
 AEROSOL MEASUREMENTS FROM THE ER-2 IN SPADE II AND A  
 SHOME: UPGRADE OF THE FOCUSED CAVITY AEROSOL ...  
*Period* *Obligations*  
 02/18/1993-02/28/1994 FY93: \$41,000 TOTAL: \$41,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 J C WILSON ARC/E CONDON 31-Atmos Sci

**NASA'S UNIVERSITY PROGRAM  
COLORADO (Continued)**

**NSG-1432 University of Denver 3094**  
GROUND MONITORING OF ATMOSPHERIC CONSTITUENTS BY HIGH  
RESOLUTION INFRARED SOLAR SPECTROSCOPY  
*Period Obligations*  
07/08/1977-04/10/1994 FY93: \$0 TOTAL: \$1,115,705  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D G MURCRAY LARC/C P RINSLAND 39-Env Sci, NEC  
....M A SMITH

**NAG 8-227 University of Northern Colorado 3095**  
JOVE  
*Period Obligations*  
02/25/1992-07/16/1994 FY93: \$34,500 TOTAL: \$100,500  
*Prin. Invest. NASA Tech. Officer CASE Category*  
C JACKSON MSFC/F SIX 54-Env Biology  
S FRYE  
R WALCH

**NAG 5-1457 University of Southern Colorado 3096**  
ROSAT ALL-SKY SURVEY: BE TYPE STARS  
*Period Obligations*  
08/27/1990-09/30/1992 FY93: \$0 TOTAL: \$10,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
T P SNOW GSFC/R PETRE 11-Astronomy

**NCC 2-373 University of Southern Colorado 3097**  
INVESTIGATION OF ADVANCED FAILURE MODES ANALYSES TESTS  
FOR HARRIER DIGITAL AVIONICS  
*Period Obligations*  
10/01/1987-09/30/1993 FY93: \$421,899 TOTAL: \$1,988,545  
*Prin. Invest. NASA Tech. Officer CASE Category*  
W R DUNN ARC/V B HOLLAND 49-Engr, NEC  
M LEE ....R YEE

**NCC 2-609 University of Southern Colorado 3098**  
INVESTIGATION OF ADVANCED SYSTEM ASSURANCE TECHNO  
LOGIES  
*Period Obligations*  
05/22/1989-09/30/1993 FY93: \$134,064 TOTAL: \$558,935  
*Prin. Invest. NASA Tech. Officer CASE Category*  
W R DUNN ARC/L W DOTY 49-Engr, NEC  
....C N BURROUS

**NAG 3-1004 University of Connecticut 3101**  
X-RAY BASED EXTENSOMETRY  
*Period Obligations*  
02/20/1989-09/01/1992 FY93: \$291 TOTAL: \$149,691  
*Prin. Invest. NASA Tech. Officer CASE Category*  
E H JORDAN LERC/G C FRALICK 46-Mech Engr  
D M PEASE

**NAG 3-1258 University of Connecticut 3102**  
HEAT CONDUCTION PROPERTIES OF COMPOSITES WITH A PE  
RIODIC MICROSTRUCTURE  
*Period Obligations*  
03/13/1991-01/14/1994 FY93: \$30,272 TOTAL: \$158,042  
*Prin. Invest. NASA Tech. Officer CASE Category*  
E H JORDAN LERC/A D FREED 46-Mech Engr  
K P WALKER ....M A MCGAW

**NAG 3-1280 University of Connecticut 3103**  
MULTIDOMAIN PSEUDOSPECTRAL METHOD FOR COMPRESSIBLE  
VISCOS FLUID FLOWS IN TURBOMACHINERY  
*Period Obligations*  
06/17/1991-05/31/1992 FY93: \$10,103 TOTAL: \$31,253  
*Prin. Invest. NASA Tech. Officer CASE Category*  
P HANLEY LERC/J GOODRICH 41-Aero Engr

**NAG 3-1348 University of Connecticut 3104**  
A STUDY OF UNSTEADY VISCOUS COMPRESSIBLE FLOWS IN  
TURBOMACHINERY USING A MULTI-DOMAIN PSEUDOSPECTRAL  
*Period Obligations*  
05/19/1992-05/31/1994 FY93: \$31,366 TOTAL: \$61,307  
*Prin. Invest. NASA Tech. Officer CASE Category*  
P HANLEY LERC/L REID 41-Aero Engr

**NAG 5-2248 University of Connecticut 3105**  
TUNABLE LASER SOURCE FOR IR SPECTROSCOPY  
*Period Obligations*  
04/30/1993-04/30/1994 FY93: \$45,112 TOTAL: \$45,112  
*Prin. Invest. NASA Tech. Officer CASE Category*  
P K CHEO GSFC/T KOSTIUK 45-Elec Engr

**CONNECTICUT**

**NAGW 3332 Univ. of Connecticut Health Center 3099**  
COLLAGEN PROMOTER TRANSEGENE ACTIVITY IN NORMAL AN D  
MUTANT MICE  
*Period Obligations*  
02/05/1993-01/31/1994 FY93: \$60,000 TOTAL: \$60,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D W ROWE HQ/T W HALSTEAD 51-Biological Sci

**NAG 1-1382 University of Connecticut 3100**  
NEAR-THRESHOLD FATIGUE CRACK GROWTH IN ALUMINUM AL  
LOYS AND Ti-6AL-4V FOR AMBIENT TO 400 DEGREES F  
*Period Obligations*  
02/28/1992-02/25/1994 FY93: \$50,728 TOTAL: \$98,854  
*Prin. Invest. NASA Tech. Officer CASE Category*  
A J MCEVILY LARC/J C NEWMAN 47-Materials Engr  
....C E HARRIS

**NAGW 2088 University of Connecticut 3106**  
CALIBRATION AND TESTING OF POPULATION DYNAMICS MOD ELS  
AT MULTIPLE SPATIAL SCALES USING REMOTE SENS.  
*Period Obligations*  
05/14/1990-04/30/1993 FY93: \$0 TOTAL: \$314,779  
*Prin. Invest. NASA Tech. Officer CASE Category*  
S PACALS HQ/M M AVERNER 54-Env Biology

**NAS 3-26619 University of Connecticut 3107**  
X-RAY BASED EXTENSOMETRY  
*Period Obligations*  
07/13/1992-02/14/1994 FY93: \$0 TOTAL: \$83,848  
*Prin. Invest. NASA Tech. Officer CASE Category*  
E JORDAN LERC/J P BARRENGER 47-Materials Engr

**NASA'S UNIVERSITY PROGRAM**  
**CONNECTICUT (Continued)**

**NGT 00-070-214 University of Connecticut 3108**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
 MINORITY FOCUS PROGRAM  
*Period Obligations*  
 06/04/1991-06/30/1993 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 C S SUNG HQ/F C OWENS 43-Chem Engr

**NAG 3-1195 Yale University 3115**  
 REDUCED MECHANISMS IN PREMIXED AND NONPREMIXED HYDRO  
 GEN AND METHANE-AIR FLAMES  
*Period Obligations*  
 07/18/1990-03/07/1994 FY93: \$81,654 TOTAL: \$260,106  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M D SMOOKE LERC/M J RABINOWITZ 12-Chemistry  
 ....E A LEZBERG

**NAG 8-274 University of Hartford 3109**  
 JOVE  
*Period Obligations*  
 12/10/1992-05/31/1994 FY93: \$47,000 TOTAL: \$47,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 L NAGURNEY MSFC/F SIX 99-Multi-Discip

**NAG 3-1259 Yale University 3116**  
 COMBUSTION OF ELECTROSTATIC SPRAYS OF LIQUID FUELS IN  
 LAMINAR AND TURBULENT REGIMES  
*Period Obligations*  
 03/13/1991-12/17/1993 FY93: \$109,208 TOTAL: \$270,494  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A GOMEZ LERC/H D ROSS 46-Mech Engr  
 M B LONG  
 M D SMOOKE

**NGT 00-040-037 University of Hartford 3110**  
 NATIONAL SPACE GRANT COLLEGE AND FELLOWSHIP PROGRA M  
*Period Obligations*  
 08/15/1991-02/28/1994 FY93: \$173,000 TOTAL: \$493,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A L PIERCE HQ/E T SCHWARTZ 99-Multi-Discip

**NAG 5-736 Yale University 3117**  
 SOLAR RADIUS-LUMINOSITY STUDIES  
*Period Obligations*  
 02/15/1986-05/14/1993 FY93: \$0 TOTAL: \$319,362  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S SOFIA GSFC/E J MAIER 31-Atmos Sci

**NAGW 3632 Wesleyan University 3111**  
 PHOTOMETRIC STUDIES OF T TAURI STARS  
*Period Obligations*  
 05/28/1993-05/31/1994 FY93: \$30,000 TOTAL: \$30,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 W HERBST HQ/J A NUTH 19-Phys Sci, NEC

**NAG 5-1244 Yale University 3118**  
 SUPERCONDUCTING FILMS SINGLE PHOTON X-RAY DETECTORS  
*Period Obligations*  
 07/28/1989-08/14/1993 FY93: \$112,600 TOTAL: \$326,080  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D E PROBER GSFC/S H MOSELEY 13-Physics

**NAG 1-1034 Yale University 3112**  
 RELAMINARIZATION AND RETRANSITION IN SUPERSONIC  
 BOUNDARY LAYERS  
*Period Obligations*  
 06/27/1989-12/31/1992 FY93: \$1 TOTAL: \$96,237  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 K R SREENIVASAN LARC/A KUMAR 41-Aero Engr

**NAG 5-1486 Yale University 3119**  
 GLOBAL MODELING OF YEARS-TO-CENTURIES TIMESCALE  
*Period Obligations*  
 11/26/1990-04/30/1994 FY93: \$135,000 TOTAL: \$675,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 P DEMARQUE GSFC/T J BIRMINGHAM 13-Physics

**NAG 3-884 Yale University 3113**  
 THEORY OF CHEM VAPOR DEP PROCESSES FOR ADV CERAMIC  
 COATINGS  
*Period Obligations*  
 03/23/1988-11/01/1992 FY93: \$0 TOTAL: \$190,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D ROSNER LARC/C A STEARNS 19-Phys Sci, NEC

**NAG 5-1619 Yale University 3120**  
 HRI OBSERVATIONS OF NEARBY GLOBULAR CLUSTERS: II FOR  
 OPTICAL IDENTIFICATION IN THE NEAREST . . .  
*Period Obligations*  
 10/15/1991-04/14/1994 FY93: \$17,628 TOTAL: \$33,956  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 C D BAILYN GSFC/R PETRE 11-Astronomy

**NAG 3-996 Yale University 3114**  
 FUEL-RICH CATALYTICALLY STABILIZED COMBUSTION  
*Period Obligations*  
 02/07/1989-12/31/1993 FY93: \$103,548 TOTAL: \$468,866  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 L D PFETTERLE LERC/C M LEE 99-Multi-Discip  
 C HORVATH  
 A OLIVER

**NAG 5-1803 Yale University 3121**  
 FAR-INFRARED EMISSION, GAS, AND ULTRALUMINOUS HII REGIONS  
 IN M101  
*Period Obligations*  
 09/18/1991-09/30/1992 FY93: \$0 TOTAL: \$9,423  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 N Z KENNY GSFC/D WEST 11-Astronomy

**NASA'S UNIVERSITY PROGRAM  
CONNECTICUT (Continued)**

**NAG 5-2316 Yale University 3122**  
NONLINEAR DYNAMICS OF GLOBAL ATMOSPHERIC AND EARTH  
SYSTEM PROCESSES  
*Period Obligations*  
07/12/1993-07/14/1994 FY93: \$50,000 TOTAL: \$50,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
B. SALTZMAN GSFC/O W THIELE 31-Atmos Sci

**NAG 8-785 Yale University 3123**  
STALLITE DATA APPLICATION TO STUDY GLOBAL WEATHER  
SYSTEMS  
*Period Obligations*  
07/24/1989-02/28/1993 FY93: \$0 TOTAL: \$324,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
B. SALTZMAN MSFC/J W KAUFMAN 31-Atmos Sci  
...../F W LESLIE

**NAG 8-947 Yale University 3124**  
FOAM METALLIC GLASS  
*Period Obligations*  
01/19/1993-01/13/1994 FY93: \$120,000 TOTAL: \$120,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R E APFEL MSFC/D REISS 47-Materials Engr

**NAGW 2469 Yale University 3125**  
WHEN STARS COLLIDE; COMPACT OBJECTS IN GLOBULAR CL  
USTERS  
*Period Obligations*  
05/01/1991-12/31/1993 FY93: \$88,726 TOTAL: \$281,297  
*Prin. Invest. NASA Tech. Officer CASE Category*  
C BAILYN HQ/G S KUTTER 11-Astronomy  
...../G R RIEGLER

**NAGW 2531 Yale University 3126**  
NAGW-2531/YALE UNIV/THEORETICAL STUDIES OF THE  
SOLAR-STELLAR CONNECTION WITH THE AID OF SPACE  
*Period Obligations*  
06/03/1991-02/28/1994 FY93: \$182,238 TOTAL: \$513,415  
*Prin. Invest. NASA Tech. Officer CASE Category*  
P DEMARQUE HQ/G S KUTTER 11-Astronomy  
...../G R RIEGLER

**NAGW 2937 Yale University 3127**  
THE INTERPRETATION OF ULTRAVIOLET AND VISIBLE OBSER-  
VATIONS OF METAL RICH GALAXIES  
*Period Obligations*  
02/27/1992-12/31/1992 FY93: \$0 TOTAL: \$50,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
A OEMLER HQ/R STACHNIK 11-Astronomy  
...../E J WEILER

**NAGW 3563 Yale University 3128**  
INTERPRETATION OF ULTRAVIOLET AND VISIBLE OBSERVATIONS  
OF METAL RICH GALAXIES  
*Period Obligations*  
04/29/1993-12/31/1993 FY93: \$60,000 TOTAL: \$60,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
A OEMLER HQ/R STACHNIK 11-Astronomy  
...../E J WEILER

**NCC 2-726 Yale University 3129**  
CULTIVATION OF TOMATO TISSUES CAPABLE OF FORMING  
FLOWERS AND MATURE FRUITS IN VITRO  
*Period Obligations*  
06/28/1991-05/31/1994 FY93: \$84,550 TOTAL: \$264,296  
*Prin. Invest. NASA Tech. Officer CASE Category*  
A W GALSTON ARC/R D MACELROY 51-Biological Sci

**NGT 00-030-010 Yale University 3130**  
NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
10/23/1990-08/31/1993 FY93: \$0 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
E P SALATHE HQ/G ASRAR 31-Atmos Sci

**NGT 00-030-118 Yale University 3131**  
NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
10/30/1992-08/31/1994 FY93: \$44,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
C G WRAY HQ/G ASRAR 39-Env Sci, NEC  
...../D M BUTLER

**NGT 00-030-143 Yale University 3132**  
NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
11/02/1992-08/31/1994 FY93: \$44,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
M F COCHRAN HQ/G ASRAR 33-Oceanography  
...../D M BUTLER

**NGT 00-050-377 Yale University 3133**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
08/16/1988-08/31/1992 FY93: \$0 TOTAL: \$80,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D E ROSNER HQ/F C OWENS 43-Chem Engr

**NGT 00-050-586 Yale University 3134**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
07/24/1990-06/30/1994 FY93: \$0 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D E PROBER HQ/F C OWENS 13-Physics

**NGT 00-050-651 Yale University 3135**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
09/12/1990-08/31/1993 FY93: \$0 TOTAL: \$65,920  
*Prin. Invest. NASA Tech. Officer CASE Category*  
S SOFIA HQ/F C OWENS 11-Astronomy

**NGT 00-050-719 Yale University 3136**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
06/26/1991-06/30/1994 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D GELERNTER HQ/F C OWENS 22-Computer Science

**NASA'S UNIVERSITY PROGRAM  
CONNECTICUT (Continued)**

**NGT 00-050-749 Yale University 3137**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
08/27/1991-08/11/1992 FY93: \$0 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
P ANONDAN HQ/F C OWENS 22-Computer Science

**NGT 00-050-832 Yale University 3138**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
06/25/1991-06/30/1994 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
L J GUIDO HQ/F C OWENS 13-Physics

**NGT 00-050-858 Yale University 3139**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
07/26/1991-06/30/1993 FY93: \$0 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D GELERNTER HQ/F C OWENS 22-Computer Science

**NGT 00-050-859 Yale University 3140**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
08/12/1991-06/30/1994 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D GELERNTER HQ/F C OWENS 22-Computer Science

**NGT 00-050-972 Yale University 3141**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
06/26/1992-08/31/1993 FY93: \$0 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
S EISENSTAT HQ/P HUNTER 22-Computer Science

**NGT 00-051-037 Yale University 3142**  
GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
05/05/1993-06/30/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D PROBER JPL/C HIX 13-Physics

**NGT 00-090-113 Yale University 3143**  
GRSP/UMF  
*Period Obligations*  
09/16/1992-08/14/1994 FY93: \$12,000 TOTAL: \$24,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R WEBER HQ/D K RUSSELL 99-Multi-Discip

**DELAWARE**

**NAG 8-248 Delaware State College 3144**  
JOVE  
*Period Obligations*  
08/10/1992-08/09/1994 FY93: \$18,292 TOTAL: \$51,408  
*Prin. Invest. NASA Tech. Officer CASE Category*  
P DIMARIC MSFC/C R CHAPPELL 11-Astronomy

**NAG 1-1383 University of Delaware 3145**  
TESTING AND CHARACTERIZATION OF THROUGH-THE-THICK NESS  
PROPERTIES OF MULTI-DIRECTIONALLY REINFORCED  
*Period Obligations*  
02/20/1992-02/12/1994 FY93: \$60,000 TOTAL: \$108,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
T CHOU LARC/W C JACKSON 47-Materials Engr  
A PARVIZI-MAJIDI ....C E HARRIS

**NAG 2-638 University of Delaware 3146**  
PERFORMANCE AND POLICY DIMENSIONS IN INTERNET ROUTI NG  
*Period Obligations*  
05/22/1990-01/31/1994 FY93: \$212,078 TOTAL: \$848,689  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D L MILLS ARC/H LUM 45-Elec Engr  
G C BONCELET ....D MCKELLAR

**NAG 3-1424 University of Delaware 3147**  
SURFACTANT-BASED CRITICAL PHENOMENA IN MICROGRAVIT Y  
*Period Obligations*  
01/11/1993-12/31/1993 FY93: \$100,000 TOTAL: \$100,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
E W KALER LERC/R A WILKINSON 13-Physics  
M E PAULAITIS

**NAG 5-1654 University of Delaware 3148**  
(1) CHEMICAL EVOLUTION OF HOT WHITE DWARF STARS; (2)  
VARIABLE WHITE DWARF X-RAY SOURCES  
*Period Obligations*  
06/24/1991-08/31/1993 FY93: \$0 TOTAL: \$53,695  
*Prin. Invest. NASA Tech. Officer CASE Category*  
H SHIPMAN GSFC/R PETRO 11-Astronomy

**NAGW 374 University of Delaware 3149**  
REMOTE SENSING INVESTIGATIONS OF WETLAND BIOMASS AND  
PRODUCTIVITY FOR GLOBAL BIOSYSTEMS RESEARCH  
*Period Obligations*  
11/01/1982-09/14/1992 FY93: \$0 TOTAL: \$592,790  
*Prin. Invest. NASA Tech. Officer CASE Category*  
V KLENAS HQ/M M AVERNER 51-Biological Sci  
M A HARDISKY ....D L DEVINCENZI

**NAGW 1040 University of Delaware 3150**  
ISOTOPIC COMPOSITION OF COSMIC RAY HELIUM FROM 0.3 TO  
1.8  
*Period Obligations*  
02/15/1987-02/14/1994 FY93: \$175,000 TOTAL: \$1,239,574  
*Prin. Invest. NASA Tech. Officer CASE Category*  
P EVENSON HQ/W V JONES 13-Physics



**NASA'S UNIVERSITY PROGRAM  
DELAWARE (Continued)**

**NAGW 1644 University of Delaware 3151**  
THEORETICAL STUDIES IN COSMIC PHYSICS  
*Period Obligations*  
03/02/1989-02/28/1994 FY93: \$60,000 TOTAL: \$300,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
T K GAISSER HQ/M M MELLOTT 13-Physics  
....W V JONES

**NAGW 1674 University of Delaware 3152**  
COORDINATION OF COMPUTER NETWORKING  
*Period Obligations*  
03/13/1989-06/30/1994 FY93: \$38,000 TOTAL: \$342,365  
*Prin. Invest. NASA Tech. Officer CASE Category*  
F WEBSTER HQ/G S LAGERLOEF 33-Oceanography  
....W S WILSON

**NAGW 1884 University of Delaware 3153**  
THE USE OF MULTI-CHANNEL MICROWAVE REMOTE SENSING IN  
*Period Obligations*  
10/27/1991-12/31/1992 FY93: \$0 TOTAL: \$129,804  
*Prin. Invest. NASA Tech. Officer CASE Category*  
C J WILLMOTT HQ/D E WICKLAND 39-Env Sci, NEC  
....R E MURPHY

**NAGW 2624 University of Delaware 3154**  
NAGW-2624/UNIV. DELEWARE/ANALYSIS AND DYNAMICCAL MOD  
ELLING OF UV LINE PROFILE VARIABILITY IN HOT STAR  
*Period Obligations*  
08/02/1991-04/30/1994 FY93: \$70,000 TOTAL: \$200,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
S P CWOCKI HQ/G S KUTTER 11-Astronomy  
....G R RIEGLER

**NAGW 2798 University of Delaware 3155**  
FORMATION OF ORDERED ARRAYS OF PROTEINS ON SURFACE S  
*Period Obligations*  
01/03/1992-12/31/1993 FY93: \$93,820 TOTAL: \$205,692  
*Prin. Invest. NASA Tech. Officer CASE Category*  
A M LENHOFF HQ/J K ALEXANDER 51-Biological Sci  
....D A HOLLAND

**NAGW 2953 University of Delaware 3156**  
RESPONSE OF X-BAND NORMALIZED RADAR CROSS SECTION TO  
SEA SURFACE TEMPERATURE AND WAVE NUMBER SPECTRA  
*Period Obligations*  
03/06/1992-12/31/1993 FY93: \$59,942 TOTAL: \$117,529  
*Prin. Invest. NASA Tech. Officer CASE Category*  
X H YAN HQ/J S THEON 33-Oceanography

**NAGW 2981 University of Delaware 3157**  
EFFECTS OF RAIN ON SCATTEROMETER WIND MEASUREMENTS  
*Period Obligations*  
03/10/1992-12/31/1993 FY93: \$79,000 TOTAL: \$153,752  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J WU HQ/J S THEON 31-Atmos Sci

**NAS 3-25791 University of Delaware 3158**  
MODELING AND CHARACTERIZATION OF MULTI-DIMENSIONAL LY  
*Period Obligations*  
09/26/1989-10/26/1993 FY93: \$80,150 TOTAL: \$269,816  
*Prin. Invest. NASA Tech. Officer CASE Category*  
T W CHOU LERC/J P GYKENYESI 41-Aero Engr  
A P MAJIDI

**NGT 00-030-098 University of Delaware 3159**  
NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
10/21/1992-08/31/1994 FY93: \$44,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J S GREENE HQ/G ASRAR 99-Multi-Discip  
....J S THEON

**NGT 00-030-126 University of Delaware 3160**  
NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
10/21/1992-08/31/1994 FY93: \$44,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J SONG HQ/G ASRAR 99-Multi-Discip  
....D M BUTLER

**NGT 00-040-023 University of Delaware 3161**  
NATIONAL SPACE GRANT COLLEGE AND FELLOWSHIP PROGRA M  
*Period Obligations*  
04/03/1991-02/28/1994 FY93: \$208,000 TOTAL: \$563,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
N F NESS HQ/E T SCHWARTZ 99-Multi-Discip

**NGT 00-050-806 University of Delaware 3162**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
08/12/1991-08/31/1994 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
S P OWOCKI HQ/J ALEXANDER 11-Astronomy

**NGT 00-050-871 University of Delaware 3163**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
08/18/1992-08/31/1994 FY93: \$22,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D L SPARKS JSC/S GOLDSTEIN 55-Agriculture Sci

**NGT 00-050-889 University of Delaware 3164**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
05/15/1992-06/30/1993 FY93: \$22,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
K HUNSPERGER JPL/H ASHKERAS 45-Elec Engr

**DISTRICT OF COLUMBIA**

**NAG 5-1679 Corcoron School of Art 3165**  
SCIENTIFIC VISUALIZATION PRODUCT STUDIES  
*Period Obligations*  
07/01/1991-02/28/1993 FY93: \$0 TOTAL: \$31,325  
*Prin. Invest. NASA Tech. Officer CASE Category*  
S TWEEDY GSFC/M HALEM 99-Multi-Discip  
....J P STRONG

**NASA'S UNIVERSITY PROGRAM  
DISTRICT OF COLUMBIA (Continued)**

**NAG 5-1812** **Gallaudet College** **3166**  
MONTE CARLO SHOWER COUNTER STUDIES  
*Period* *Obligations*  
09/19/1991-03/31/1993 FY93: \$0 TOTAL: \$15,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
H D SNYDER GSFC/R E STREITMATTER 11-Astronomy

**NGT 00-090-013** **Gallaudet College** **3167**  
A MODEL SUMMER PROGRAM FOR HANDICAPPED COLLEGE STUDENTS  
*Period* *Obligations*  
06/08/1988-12/31/1993 FY93: \$60,755 TOTAL: \$304,039  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
NISSEN HQ/M MARGOLIS 49-Engr, NEC

**NGT 00-090-057** **Gallaudet College** **3168**  
UNDERGRADUATE STUDENT RESEARCHERS PRG  
*Period* *Obligations*  
11/26/1991-08/31/1994 FY93: \$36,757 TOTAL: \$109,152  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
G MCGAUGHRAN HQ/D RUSSELL 99-Multi-Discip

**NGT 00-090-074** **Gallaudet College** **3169**  
UNDERGRADUATE STUDENT RESEARCHERS PROGRAM (UMF)  
*Period* *Obligations*  
09/26/1992-08/14/1993 FY93: \$4,793 TOTAL: \$4,793  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
A NISSEN HQ/D RUSSELL 99-Multi-Discip

**NGT 00-090-075** **Gallaudet College** **3170**  
UNDERGRADUATE STUDENT RESEARCHERS PROGRAM (UMF)  
*Period* *Obligations*  
09/12/1992-08/14/1994 FY93: \$12,000 TOTAL: \$24,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
G MCGAUGHRAN HQ/D RUSSELL 99-Multi-Discip

**NGT 00-090-182** **Gallaudet College** **3171**  
UNDERGRADUATE STUDENT RESEARCHERS PROGRAM  
*Period* *Obligations*  
08/27/1993-08/14/1994 FY93: \$12,000 TOTAL: \$12,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
G MCGAUGHRAN HQ/D K RUSSELL 99-Multi-Discip

**NAG 1-1353** **George Washington University** **3172**  
RESEARCH AND EDUCATION PROGRAM FOR NON-TRADITIONAL ENGINEERING STUDENTS IN THE JIAFS  
*Period* *Obligations*  
10/09/1991-10/06/1993 FY93: \$120,332 TOTAL: \$265,226  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J L WHITESIDES LARC/R L YANG 49-Engr, NEC  
....E J PRIOR

**NAG 1-1386** **George Washington University** **3173**  
DEVELOPMENT AND APPLICATION OF PARALLEL ALGORITHMS FOR CFD USING UNSTRUCTURED GRIDS  
*Period* *Obligations*  
02/13/1992-07/11/1993 FY93: \$20,319 TOTAL: \$70,319  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R LOHNER LARC/M D SALAS 29-Math/Computer, NEC  
....T A ZANG

**NAG 1-1416** **George Washington University** **3174**  
EVALUATION OF MODAL IDENTIFICATION METHODS FOR THE SPACE STATION FREEDOM MODAL IDENTIFICATION EXP.  
*Period* *Obligations*  
03/17/1992-08/31/1993 FY93: \$29,333 TOTAL: \$75,823  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R H TOLSON LARC/R G KVATERNIK 46-Mech Engr

**NAG 3-860** **George Washington University** **3175**  
ROTATING EJECTORS  
*Period* *Obligations*  
02/08/1988-12/14/1993 FY93: \$13,480 TOTAL: \$259,603  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
C A GARRIS LERC/C K DRUMMOND 41-Aero Engr  
J V FOA ....R LUIDENS

**NAG 3-1162** **George Washington University** **3176**  
WHISKER GROWTH STUDIES UNDER CONDITIONS WHICH RESEMBLE THOSE AVAILABLE ON AN ORBITING SPACE LAB  
*Period* *Obligations*  
04/04/1990-12/31/1992 FY93: \$2,231 TOTAL: \$32,769  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
H H HOBBS LERC/T K GLASGOW 47-Materials Engr

**NAG 5-697** **George Washington University** **3177**  
MATHEMATICAL MODELING OF ENERGY MINIMIZING OFF-DESIGN SHAPES OF LARGE SCIENTIFIC BALLOONS  
*Period* *Obligations*  
01/25/1993-01/31/1994 FY93: \$75,108 TOTAL: \$75,108  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
F BAGINSKI GSFC/H C NEEDLEMAN 41-Aero Engr  
....I S SMITH

**NAG 5-1807** **George Washington University** **3178**  
CORRELATION EFFECTS IN VEGETATION MODELING FOR DETERMINATION OF HYDRAULIC PARAMETERS IN UNDERLYING SOILS  
*Period* *Obligations*  
09/19/1991-09/30/1993 FY93: \$21,999 TOTAL: \$43,998  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
N M KHADR GSFC/J A WEINMAN 39-Env Sci, NEC  
R H LANG ....A J BUSALACCHI

**NAG 5-2325** **George Washington University** **3179**  
SYNERGISTIC USE OF ACTIVE AND PASSIVE MICROWAVE REMOTE SENSING FOR RETRIEVING SOIL MOISTURE  
*Period* *Obligations*  
07/16/1993-10/30/1993 FY93: \$22,548 TOTAL: \$22,548  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
N CHAUHAN GSFC/P O'NEILL 54-Env Biology  
....E ENGMAN

**NAG 8-788** **George Washington University** **3180**  
DEVELOPING AN EARTH SCIENCE DATA POLICY  
*Period* *Obligations*  
08/10/1989-03/31/1994 FY93: \$0 TOTAL: \$232,107  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J M LOGSDON MSFC/J B STEPHENS 19-Phys Sci, NEC  
L R SHAFFER ....G S WILSON

**NASA'S UNIVERSITY PROGRAM  
DISTRICT OF COLUMBIA (Continued)**

**NAGW 2071 George Washington University 3181**  
DISCRETE RANDOM MODELING OF VEGETATION  
*Period Obligations*  
05/02/1990-02/28/1994 FY93: \$100,000 TOTAL: \$400,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R H LANG HQ/G ASRAR 19-Phys Sci, NEC  
....T J PIEPER

**NAGW 2498 George Washington University 3182**  
HUMANS IN SPACE: EMERGING POLICY ISSUES  
*Period Obligations*  
05/10/1991-12/31/1993 FY93: \$100,000 TOTAL: \$300,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J LOGSDON HQ/F SULZMAN 59-Life Sci, NEC

**NAGW 3295 George Washington University 3183**  
POLICY ASPECTS OF PLANETARY EXPLORATION AND ASTRONOMY  
*Period Obligations*  
12/31/1992-09/30/1993 FY93: \$23,670 TOTAL: \$23,670  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J M LOGSDON HQ/H C BRINTON 11-Astronomy

**NAS 1-18458 George Washington University 3184**  
EXPERIMENTAL AND ANALYTICAL ENGINEERING AND OTHER SCIENCE SUPPORT  
*Period Obligations*  
04/13/1987-04/12/1992 FY93: \$0 TOTAL: \$3,297,970  
*Prin. Invest. NASA Tech. Officer CASE Category*  
B E WOLFSON LARC/S E MASSENBERG 41-Aero Engr  
....E J PRIOR

**NAS 1-19699 George Washington University 3185**  
AERONAUTICAL, ASTRONAUTICAL, MATERIALS SCIENCE, COMPUTER SCIENCE AND RELATED DISCIPLINE SUPPORT  
*Period Obligations*  
08/07/1992-08/07/1997 FY93: \$68,219 TOTAL: \$89,629  
*Prin. Invest. NASA Tech. Officer CASE Category*  
LARC/R L YANG 41-Aero Engr  
....E J PRIOR

**NASW 4324 George Washington University 3186**  
EDITORIAL SUPPORT FOR LIFE SCIENCES DIVISION  
*Period Obligations*  
07/01/1988-09/30/1993 FY93: \$304,120 TOTAL: \$2,125,260  
*Prin. Invest. NASA Tech. Officer CASE Category*  
F R DUTCHER HQ/M SHEPANAK 59-Life Sci, NEC

**NASW 4412 George Washington University 3187**  
RESEARCH AND COMPIL A DOCUMENTARY HISTORY OF THE SPACE AGE  
*Period Obligations*  
05/11/1989-03/01/1993 FY93: \$0 TOTAL: \$376,812  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J M LOGSDON HQ/S D FRIES 73-History  
R A WILLIAMSON

**NCC 1-14 George Washington University 3188**  
AEROACOUSTICS RESEARCH PROGRAM IN JIAFS  
*Period Obligations*  
05/16/1979-10/31/1993 FY93: \$232,413 TOTAL: \$2,164,496  
*Prin. Invest. NASA Tech. Officer CASE Category*  
H LIEBOWITZ LARC/L R CLARK 41-Aero Engr  
M K MYERS ....D G STEPHENS

**NCC 1-24 George Washington University 3189**  
PROGRAMS OF RESEARCH IN FLIGHT SCIENCES  
*Period Obligations*  
08/08/1979-01/31/1994 FY93: \$326,692 TOTAL: \$2,364,202  
*Prin. Invest. NASA Tech. Officer CASE Category*  
H LIEBOWITZ LARC/R T BRIGHT 41-Aero Engr  
J L WHITESIDES

**NCC 1-29 George Washington University 3190**  
RESEARCH PROGRAM IN FLIGHT DYNAMICS IN THE JIAPS AT THE NASA LANGLEY RESEARCH CENTER  
*Period Obligations*  
11/16/1979-11/30/1993 FY93: \$194,105 TOTAL: \$1,878,835  
*Prin. Invest. NASA Tech. Officer CASE Category*  
H LIEBOWITZ LARC/P C MURPHY 41-Aero Engr

**NCC 1-47 George Washington University 3191**  
CORE PROGRAM IN THE JOINT INSTITUTE FOR ADVANCEMENT OF FLIGHT SCIENCES AT THE NASA-LANGLEY RESEARCH  
*Period Obligations*  
11/05/1980-10/31/1992 FY93: \$438,096 TOTAL: \$3,920,191  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J L WHITESIDES LARC/R L YANG 41-Aero Engr  
H W LIEBOWITZ ....M F CARD

**NCC 1-104 George Washington University 3192**  
A PROGRAM OF RESEARCH AND EDUCATION IN ASTRONAUTICS IN JIAFS  
*Period Obligations*  
04/30/1986-01/31/1994 FY93: \$204,223 TOTAL: \$1,262,248  
*Prin. Invest. NASA Tech. Officer CASE Category*  
H LIEBOWITZ LARC/J P ARRINGTON 42-Astro Engr

**NCC 5-43 George Washington University 3193**  
COOPERATIVE RESEARCH AND EDUCATION IN SPACE SYSTEM  
*Period Obligations*  
08/31/1989-10/31/1992 FY93: \$5,857 TOTAL: \$1,421,442  
*Prin. Invest. NASA Tech. Officer CASE Category*  
H LIEBOWITZ GSFC/T E HUBER 42-Astro Engr  
B KRAMER ....J H ROBINSON  
J L WHITESIDES

**NCC 5-51 George Washington University 3194**  
PROGRAM FOR RESEARCH AND EDUCATION IN SPACE TECHNOLOGY  
*Period Obligations*  
12/14/1992-12/14/1993 FY93: \$712,958 TOTAL: \$712,958  
*Prin. Invest. NASA Tech. Officer CASE Category*  
G FRIEDER GSFC/T E HUBER 42-Astro Engr  
N BEDEWI ....J R ROBINSON

**NCC 5-53 George Washington University 3195**  
DISTRIBUTION AND STRUCTURE OF BIOMASS IN BOREAL FOREST ECOSYSTEMS  
*Period Obligations*  
06/17/1993-06/30/1994 FY93: \$21,351 TOTAL: \$21,351  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R LANG GSFC/F G HALL 39-Env Sci, NEC  
....P SELLERS

**NASA'S UNIVERSITY PROGRAM  
DISTRICT OF COLUMBIA (Continued)**

**NSG-5109 George Washington University 3196**  
DECODING AND PERFORMANCE EVALUATION OF ERROR CODING CODES

Period	Obligations	
07/16/1976-03/31/1994	FY93: \$74,999	TOTAL: \$963,734
Prin. Invest.	NASA Tech. Officer	CASE Category
H J HELGERT	GSFC/W POLAND JR	49-Engr, NEC
	....W H MILLER	

**NAGW 3202 Georgetown University 3197**  
NAGW-3202/GEORGETOWN UNIV/SCIENCE, TECHNOLOGY, AND INTERNATIONAL AFFAIRS PROGRAM

Period	Obligations	
09/12/1992-07/31/1993	FY93: \$0	TOTAL: \$15,000
Prin. Invest.	NASA Tech. Officer	CASE Category
R A SCRIBNER	HQ/S G TILFORD	99-Multi-Discip
	....P BACKLUND	

**NAG 2-585 Howard University 3198**  
PROJECT TO RECONSTRUCT HALOCENE ENVIRONMENTS ON A KARSTIC PLAIN

Period	Obligations	
07/10/1989-02/28/1993	FY93: \$0	TOTAL: \$289,498
Prin. Invest.	NASA Tech. Officer	CASE Category
B H DAHLIN	ARC/P A MATSON	54-Env Biology
	....C E DULLER	

**NAG 3-1406 Howard University 3199**  
DEVELOPMENT OF CUBIC SILICON CARBIDE

Period	Obligations	
12/22/1992-12/14/1993	FY93: \$200,000	TOTAL: \$200,000
Prin. Invest.	NASA Tech. Officer	CASE Category
G L HARRIS	LERC/J A POWELL	45-Elec Engr

**NAG 3-1426 Howard University 3200**  
DEVELOPMENT OF AN ENERGY AND EXPERT SYSTEMS INSTITUTE

Period	Obligations	
03/26/1993-03/14/1994	FY93: \$387,876	TOTAL: \$387,876
Prin. Invest.	NASA Tech. Officer	CASE Category
J A MOMOH	LERC/J F SELLERS	45-Elec Engr

**NAG 3-1445 Howard University 3201**  
HOWARD UNIVERSITY/NASA LEWIS COOPERATIVE RESEARCH STUDIES

Period	Obligations	
03/25/1993-03/31/1994	FY93: \$236,304	TOTAL: \$236,304
Prin. Invest.	NASA Tech. Officer	CASE Category
R REISS	LERC/D F NOGA	46-Mech Engr

**NAG 5-995 Howard University 3202**  
A DYNAMIC SYSTEMS ENGINEERING METHODOLOGY RESEARCH STUDY

Period	Obligations	
04/15/1988-01/31/1994	FY93: \$200,000	TOTAL: \$1,173,773
Prin. Invest.	NASA Tech. Officer	CASE Category
T L GILL	GSFC/A GOODSON	49-Engr, NEC
G F KEYSER		
A S PAUL		

**NAG 5-1017 Howard University 3203**  
SUPERCONDUCTING MATERIALS FOR SPACE APPLICATIONS

Period	Obligations	
10/15/1987-12/14/1993	FY93: \$41,000	TOTAL: \$1,446,000
Prin. Invest.	NASA Tech. Officer	CASE Category
A N THORPE	GSFC/S R BREON	31-Atmos Sci
H HOJAJI	....M D JHABVALA	
A BARKATT		

**NAG 5-1049 Howard University 3204**  
RESEARCH RELATIVE TO OPTICALLY CONTROLLED MILLIMETER WAVE DEVICES

Period	Obligations	
05/15/1988-07/31/1994	FY93: \$144,882	TOTAL: \$510,961
Prin. Invest.	NASA Tech. Officer	CASE Category
R CHOWDHARY	GSFC/A S BURGESS	45-Elec Engr
Y WANG		
C E LEINKRAM		

**NAG 5-1057 Howard University 3205**  
GLASS CORROSION IN NATURAL ENVIRONMENTS

Period	Obligations	
06/15/1988-12/14/1993	FY93: \$50,000	TOTAL: \$222,000
Prin. Invest.	NASA Tech. Officer	CASE Category
A N THORPE	GSFC/W B SULLIVAN	13-Physics
A BARKATT	....J O'KEEFE	

**NAG 5-1127 Howard University 3206**  
DEVELOPMENT OF A SYSTEM AT FREQUENCIES

Period	Obligations	
04/01/1989-11/30/1991	FY93: \$0	TOTAL: \$675,040
Prin. Invest.	NASA Tech. Officer	CASE Category
G L HARRIS	GSFC/D B MOTT	45-Elec Engr
M G SPENCER		

**NAGW 785 Howard University 3207**  
PHOTOCHEMISTRY OF ACETYLENES - LAB STUDIES

Period	Obligations	
08/01/1985-11/30/1993	FY93: \$68,088	TOTAL: \$452,160
Prin. Invest.	NASA Tech. Officer	CASE Category
H OKABE	HQ/J T BERGSTRAHL	31-Atmos Sci
	....W L QUAIDE	

**NAGW 2931 Howard University 3208**  
MICROBIAL WEATHERING OF SILICATE MINERALS BY THERMOPHILES

Period	Obligations	
02/27/1992-01/31/1994	FY93: \$0	TOTAL: \$5,000
Prin. Invest.	NASA Tech. Officer	CASE Category
D W SCHWARTMAN	HQ/J D RUMMEL	54-Env Biology

**NAGW 2950 Howard University 3209**  
CENTER FOR THE STUDY OF TERRESTRIAL AND EXTRATERRESTRIAL ATMOSPHERES

Period	Obligations	
03/06/1992-12/31/1993	FY93: \$1,908,880	TOTAL: \$2,907,672
Prin. Invest.	NASA Tech. Officer	CASE Category
S J GATES	HQ/S E MASSENBERG	13-Physics
	....S HARTMAN	

**NASA'S UNIVERSITY PROGRAM  
DISTRICT OF COLUMBIA (Continued)**

**NCA 5-107 Howard University 3210**  
PUBLIC SERVICE INTERNSHIP PROGRAM  
*Period Obligations*  
06/03/1986-05/31/1994 FY93: \$53,400 TOTAL: \$332,331  
*Prin. Invest. NASA Tech. Officer CASE Category*  
M C WOODARD GSFC/D MENCHAN 99-Multi-Discip

**NGT 00-050-649 The American University 3218**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
09/11/1990-08/31/1993 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R B KAY HQ/F C OWENS 13-Physics

**NCC 2-708 Howard University 3211**  
CREW BEHAVIOR AND PERFORMANCE IN SPACE ANALOG ENVIRONMENTS  
*Period Obligations*  
04/09/1991-05/31/1992 FY93: \$0 TOTAL: \$23,563  
*Prin. Invest. NASA Tech. Officer CASE Category*  
E J LANGER ARC/B G KANKI 69-Psych, NEC

**NGT 00-051-032 The American University 3219**  
GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
07/14/1993-08/31/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R B KAY GSFC/G SOFFEN 13-Physics

**NGT 00-010-002 Howard University 3212**  
TRAINING TEACHERS FOR MIDDLE SCHOOL SCIENCE AND MATHEMATICS EDUCATION  
*Period Obligations*  
06/17/1993-06/14/1995 FY93: \$84,925 TOTAL: \$84,925  
*Prin. Invest. NASA Tech. Officer CASE Category*  
M W THOMPSON HQ/D V GALLAWAY 99-Multi-Discip

**NAG 1-1296 The Catholic University of America 3220**  
AUTOMATION AND OPERATOR 'COMPLACENCY' IN MONITORING  
*Period Obligations*  
06/21/1991-06/30/1994 FY93: \$126,211 TOTAL: \$272,294  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R PARASURAMAN LARC/A T POPE 69-Psych, NEC  
...../J R COMSTOCK

**NGT 00-040-024 Howard University 3213**  
NGT-40024/HOWARD UNIV/NATIONAL SPACE GRANT COLLEGE AND FELLOWSHIP PROGRAM  
*Period Obligations*  
05/29/1991-02/28/1994 FY93: \$195,225 TOTAL: \$537,450  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J B HALPERN HQ/E T SCHWARTZ 99-Multi-Discip

**NAG 5-296 The Catholic University of America 3221**  
THE SHARP-LINED FEATURES IN THE ULTRAVIOLET SPECTRA OF HOT WHITE DWARFS  
*Period Obligations*  
02/15/1983-09/14/1993 FY93: \$0 TOTAL: \$688,793  
*Prin. Invest. NASA Tech. Officer CASE Category*  
F C BRUHWEILER GSFC/D K WEST 11-Astronomy  
C MONTROSE  
F FEKEL

**NGT 00-050-973 Howard University 3214**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
07/13/1992-08/31/1994 FY93: \$22,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J A MOMEH JPL/H ASKHENAS 45-Elec Engr

**NAG 5-780 The Catholic University of America 3222**  
ACTIVE CONTROL OF ROBOT MANIPULATOR COMPLIANCE  
*Period Obligations*  
05/15/1986-03/14/1994 FY93: \$50,000 TOTAL: \$443,426  
*Prin. Invest. NASA Tech. Officer CASE Category*  
C C NGUYEN GSFC/T PREMACK 45-Elec Engr

**NGT 9-11060 Howard University 3215**  
SUMMER FACULTY FELLOWSHIP PROGRAM  
*Period Obligations*  
01/01/1978-01/31/1994 FY93: \$33,336 TOTAL: \$2,281,962  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D N FAN HQ/A S MCGEE 99-Multi-Discip  
...../E T SCHWARTZ

**NAG 5-1353 The Catholic University of America 3223**  
LABORATORY AND IUE SPECTROSCOPY: EXPANDING DATABASE  
*Period Obligations*  
04/11/1990-05/31/1993 FY93: \$0 TOTAL: \$121,600  
*Prin. Invest. NASA Tech. Officer CASE Category*  
F C BRUHWEILER GSFC/D WEST 11-Astronomy

**NAG 5-1319 The American University 3216**  
SOLID STATE: YAG RING LASER RESEARCH  
*Period Obligations*  
12/12/1989-01/14/1994 FY93: \$25,000 TOTAL: \$183,648  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R B KAY GSFC/B D SEERY 49-Engr, NEC

**NAG 5-1413 The Catholic University of America 3224**  
OBSERVATIONS OBTAINED W/ GODDARD HIGH RESOLUTION  
*Period Obligations*  
08/02/1990-05/14/1994 FY93: \$47,600 TOTAL: \$169,319  
*Prin. Invest. NASA Tech. Officer CASE Category*  
F C BRUHWEILER GSFC/A SMITH 11-Astronomy  
C A GRADY

**NASW 4798 The American University 3217**  
HISTORY OF SPACE AND THE AMERICAN IMAGINATION  
*Period Obligations*  
05/25/1993-05/31/1994 FY93: \$31,514 TOTAL: \$31,514  
*Prin. Invest. NASA Tech. Officer CASE Category*  
H MC CURDY HQ/R D LAUNIUS 73-History

**NAG 5-1414 The Catholic University of America 3225**  
TIME-DEPENDENT MODEL TO CALCULATE TONIC AND MOLECULAR  
*Period Obligations*  
08/02/1990-05/14/1994 FY93: \$35,360 TOTAL: \$99,360  
*Prin. Invest. NASA Tech. Officer CASE Category*  
C H LYU GSFC/A M SMITH 11-Astronomy  
F C BRUHWEILER

**NASA'S UNIVERSITY PROGRAM  
DISTRICT OF COLUMBIA (Continued)**

**NAG 5-1415 The Catholic University of America 3226**  
SPACE-RATED CONNECTORS USING ROBOT-END-EFFECTORS  
*Period Obligations*  
08/02/1990-09/30/1993 FY93: \$10,000 TOTAL: \$80,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
C C NGUYEN GSFC/L PURVES 29-Math/Computer,NEC

**NSG-5066 The Catholic University of America 3233**  
RESEARCH OF SOLAR HARD X-RAYS AND GAMMA-RAYS  
*Period Obligations*  
05/01/1975-03/31/1994 FY93: \$215,921 TOTAL: \$2,256,170  
*Prin. Invest. NASA Tech. Officer CASE Category*  
C WERNITZ GSFC/L ORWIG 11-Astronomy  
R STARR ...../R L SCHMADEBECK

**NAG 5-1580 The Catholic University of America 3227**  
A SURVEY OF X-RAY EMISSION FROM BE STARS; A ROSAT  
INVESTIGATION OF FLARE-LIKE ACTIVITY IN THE B2E...  
*Period Obligations*  
05/21/1991-05/31/1993 FY93: \$0 TOTAL: \$16,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
F BRUHWEILER GSFC/R PETRE 11-Astronomy

**NSG-5173 The Catholic University of America 3234**  
ATOM-MOLECULE REACTIONS OF CHEMICAL IMPORTANCE IN THE  
STRATHOSPHERE  
*Period Obligations*  
06/01/1977-04/30/1994 FY93: \$45,546 TOTAL: \$631,315  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D GUIMAN GSFC/D F NAVA 12-Chemistry  
J V MICHAEL

**NAG 5-1783 The Catholic University of America 3228**  
IUE OBS., OF MASS OUTFLOWS IN BETA PICTORIS AND A-SH ELL  
STAR; IUE OBS. OF A AND B STAR CANDIDATE ...  
*Period Obligations*  
09/13/1991-09/30/1993 FY93: \$0 TOTAL: \$43,600  
*Prin. Invest. NASA Tech. Officer CASE Category*  
F BRUHWEILER GSFC/D WEST 11-Astronomy

**NAG 5-1012 University of District of Columbia 3235**  
STUDY OF THE CONSISTING OF CLIMATOLOGICAL PRODUCTS OF  
NIMBUS 7  
*Period Obligations*  
10/01/1987-11/30/1992 FY93: \$0 TOTAL: \$182,276  
*Prin. Invest. NASA Tech. Officer CASE Category*  
H OHURIA GSFC/H L KYLE 31-Atmos Sci

**NAG 5-2057 The Catholic University of America 3229**  
SUPPORT AND ANALYSIS FOR THE VOYAGER UVS GUEST OBS  
ERVER AND ARCHIVAL PROGRAMS  
*Period Obligations*  
08/05/1992-08/14/1994 FY93: \$34,000 TOTAL: \$62,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
F C BRUHWEILER GSFC/R S POLIDAN 11-Astronomy  
...../R J OLIVERSON

**NAG 5-2345 University of District of Columbia 3236**  
A STUDY OF SURFACE TEMPERATURES, CLOUDS AND NET RA  
DIATION  
*Period Obligations*  
07/27/1993-08/14/1994 FY93: \$56,838 TOTAL: \$56,838  
*Prin. Invest. NASA Tech. Officer CASE Category*  
H L DHURIA GSFC/H L KYLE 31-Atmos Sci

**NAG 5-2126 The Catholic University of America 3230**  
DELINEATING THE SPECTRAL TYPE BOUNDARY FOR THE ONS ET  
OF CHROMOSPHERIC ACTIVITY  
*Period Obligations*  
10/28/1992-01/31/1994 FY93: \$24,540 TOTAL: \$24,540  
*Prin. Invest. NASA Tech. Officer CASE Category*  
F C BRUHWELLER GSFC/D WEST 12-Chemistry

**NAG 5-2348 University of District of Columbia 3237**  
HIGH TC SUPERCONDUCTING BOLOMETRIC AND NONBVOLOMET  
RIC INFRA RED (IR) DETECTORS  
*Period Obligations*  
08/09/1993-08/14/1995 FY93: \$111,000 TOTAL: \$111,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
S LAKEOU GSFC/C ALLEN 45-Elec Engr

**NAG 5-2284 The Catholic University of America 3231**  
MORPHOLOGY OF LOCAL H I VOID AND THE IONIZATION OF HELIUM  
IN THE LISM AND GALACTIC HALO  
*Period Obligations*  
06/11/1993-06/14/1994 FY93: \$40,000 TOTAL: \$40,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
F C BRUHWELLER GSFC/R O LIVERSON 11-Astronomy

**NAGW 2045 University of District of Columbia 3238**  
SATURDAY ACADEMY-ENGINEERING, MATHEMATICS AND COMP  
UTER SCIENCE FOR ACADEMICALLY TALENTED STUDENTS  
*Period Obligations*  
03/30/1990-03/31/1994 FY93: \$400,000 TOTAL: \$1,405,009  
*Prin. Invest. NASA Tech. Officer CASE Category*  
W R COLEMAN HQ/Y B FREEMAN 29-Math/Computer,NEC

**NGT 00-070-043 The Catholic University of America 3232**  
NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
MINORITY FOCUS PROGRAM  
*Period Obligations*  
10/20/1987-08/31/1994 FY93: \$22,000 TOTAL: \$142,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
F BRUHWEILER HQ/F C OWENS 13-Physics

**NAGW 2216 University of District of Columbia 3239**  
NAGW-2216/UNIV OF DISTRICT COLUMBIA/SCIENTIFIC RENEWAL  
*Period Obligations*  
08/22/1990-07/31/1994 FY93: \$115,000 TOTAL: \$752,704  
*Prin. Invest. NASA Tech. Officer CASE Category*  
W R COLEMAN HQ/M S MARGOLIS 99-Multi-Discip

**NASA'S UNIVERSITY PROGRAM  
FLORIDA**

**FLORIDA**

**NAG10-114 Brevard Community College 3240**  
INSTRUCTIONAL SYSTEMS DESIGN PROJECT  
*Period* *Obligations*  
12/01/1992-11/30/1993 FY93: \$35,000 TOTAL: \$35,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
D L PULKET KSC/B MARTIN 99-Multi-Discip

**NAG 5-1843 Eckerd College 3241**  
EXPERIMENTAL STUDIES OF FAR-INFRARED SPECTRA OF CO SMIC TYPE ICES  
*Period* *Obligations*  
12/16/1991-01/14/1994 FY93: \$0 TOTAL: \$3,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R L HUDSON GSFC/M H MOORE 11-Astronomy  
...../J A NUTH

**NAG 1-1430 Embry-Riddle Aeronautical University 3242**  
ADVANCED WORKSHOP ON ADAPTIVE FUNCTION ALLOCATION IN ARTIFICIAL INTELLIGENCE SYSTEMS - NLPN 92-223  
*Period* *Obligations*  
04/14/1992-10/12/1993 FY93: \$1 TOTAL: \$73,645  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
D J GARLAND LARC/T M WALSH 99-Multi-Discip  
J A WISE ...../K H ABBOTT

**NAG 8-273 Embry-Riddle Aeronautical University 3243**  
JOVE (SEE NCC 8 26)  
*Period* *Obligations*  
12/07/1992-05/31/1993 FY93: \$0 TOTAL: \$0  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
L ERICKSON MSFC/F SIX 31-Atmos Sci  
E HILL  
C SUDDEN

**NCC 1-66 Embry-Riddle Aeronautical University 3244**  
COCKPIT DISPLAY OF TRAFFIC INFORMATION (CDTI)  
*Period* *Obligations*  
02/24/1982-09/30/1993 FY93: \$65,447 TOTAL: \$596,291  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
G W LOHR LARC/L CREDEUR 41-Aero Engr  
...../H P BERGERON

**NCC 8-26 Embry-Riddle Aeronautical University 3245**  
JOVE (PREVIOUSLY AGREEMENT NAG 8 273)  
*Period* *Obligations*  
12/07/1992-05/31/1994 FY93: \$124,813 TOTAL: \$124,813  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
L ERICKSON MSFC/F SIX 31-Atmos Sci

**NAG 5-1735 Fla International University 3246**  
OBSERVATIONS OF AGN DURING OUTBURSTS  
*Period* *Obligations*  
08/13/1991-08/14/1993 FY93: \$0 TOTAL: \$11,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J R WEBB GSFC/D WEST 11-Astronomy

**NAG 8-272 Fla International University 3247**  
JOVE  
*Period* *Obligations*  
02/02/1993-05/30/1994 FY93: \$76,000 TOTAL: \$76,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
W V VAN HAMME MSFC/F SIX 13-Physics  
J R WEBB  
J W SHELDON

**NAG 8-283 Fla International University 3248**  
THEORY OF THE MOTION OF METEOR PARTICLES IN SOLID MATERIALS  
*Period* *Obligations*  
03/01/1993-02/28/1994 FY93: \$72,676 TOTAL: \$72,676  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
N MUNROE MSFC/F SIX 11-Astronomy  
G CHERPANOV

**NAGW 2092 Fla International University 3249**  
ALGAL SPECTRAL REFLECTANCE SIGNATURES AND REMOTE SENSING OF HYPERSALINE AQUATIC ENVIRONMENTS  
*Period* *Obligations*  
07/30/1990-04/30/1993 FY93: \$0 TOTAL: \$195,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
L L RICHARDSON HQ/M M AVERNER 54-Env Biology

**NGT 00-090-147 Fla International University 3250**  
UNDERGRADUATE STUDENT RESEARCHERS PROGRAM  
*Period* *Obligations*  
09/26/1992-08/14/1994 FY93: \$12,000 TOTAL: \$24,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J NAVLAKHA HQ/D K RUSSELL 99-Multi-Discip

**NGT 00-090-148 Fla International University 3251**  
GSRP/UMF  
*Period* *Obligations*  
09/26/1992-08/14/1994 FY93: \$12,000 TOTAL: \$24,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J NAVLAKHA HQ/D K RUSSELL 99-Multi-Discip

**NAG 1-1372 Florida A&M University 3252**  
STABILITY OF MIXING LAYERS  
*Period* *Obligations*  
01/24/1992-01/23/1993 FY93: \$0 TOTAL: \$50,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
C K TAM LARC/M G MACARAEG 41-Aero Engr  
A KROTHAPALLI ...../A KUMAR

**NAG 3-1494 Florida A&M University 3253**  
DISTANCE LEARNING IN THE SCIENCES  
*Period* *Obligations*  
05/27/1993-08/22/1995 FY93: \$60,000 TOTAL: \$60,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J L EARLY LERC/M S PLECITY 49-Engr, NEC  
K F SOLIMAN ...../R J SCHERTLER

**NAG 5-738 Florida A&M University 3254**  
APPLICATION OF THE PARTIAL DIFFERENTIAL EQUATION METHOD IN ELECTRON-MOLECULE COLLISIONS  
*Period* *Obligations*  
02/15/1986-05/14/1992 FY93: \$0 TOTAL: \$66,436  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
C A WEATHERFORD GSFC/A TEMKIN 13-Physics  
...../E C SULLIVAN

**NASA'S UNIVERSITY PROGRAM**  
**FLORIDA (Continued)**

**NAGW 2930** **Florida A&M University** **3255**  
 CENTER FOR NONLINEAR AND NONEQUILIBRIUM AEROSCIENCE  
*Period Obligations*  
 02/19/1992-12/31/1993 FY93: \$1,961,560 TOTAL: \$2,711,560  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J A JOHNSON HQ/S E MASSENBERG 99-Multi-Discip  
 ....S HARTMAN

**NGT10-40900** **Florida A&M University** **3262**  
 SPACE LIFE SCIENCE TRAINING PROGRAM  
*Period Obligations*  
 10/01/1985-12/31/1993 FY93: \$541,514 TOTAL: \$3,394,231  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 K REDDA HQ/M MARGOLIS 59-Life Sci, NEC  
 ....Y FREEMAN

**NASW 4557** **Florida A&M University** **3256**  
 NASW-4557/FL ATLANTIC UNIV/RANDD PROGRAM IN ADVANCED VIDEO SYSTEMS  
*Period Obligations*  
 09/28/1990-11/15/1993 FY93: \$0 TOTAL: \$514,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 W E GLENN HQ/W A MAULL 99-Multi-Discip  
 ....R J SCHAFER

**NAG 1-1202** **Florida Atlantic University** **3263**  
 BROAD BAND NOISE PREDICTION FOR ADVANCED DUCTED PROP FANS USIN LOCALLY GENERATED INFLOW FDP  
*Period Obligations*  
 12/17/1990-12/31/1993 FY93: \$46,208 TOTAL: \$131,476  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S A GLEGG LARC/J W POSEY 41-Aero Engr  
 ....F FARASSAT

**NCC 2-492** **Florida A&M University** **3257**  
 APPLICATION AND DEVELOPMENT OF THE SCHWINGER MULTICHANNEL SCATTERING THEORY FOR ELECTRONIC EXCITATIO  
*Period Obligations*  
 05/01/1987-02/29/1992 FY93: \$0 TOTAL: \$185,362  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 C A WEATHERFORD ARC/W M HUO 12-Chemistry

**NAG 1-1310** **Florida Atlantic University** **3264**  
 FUNDAMENTAL PROBLEMS IN PROBABILISTICS AND CONVEX ANALYSES OF UNCERTAIN INITIAL IMPERFECTIONS FDP  
*Period Obligations*  
 07/15/1991-11/30/1993 FY93: \$43,009 TOTAL: \$98,385  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 I ELISHAKOFF LARC/J H STARNES 41-Aero Engr

**NGT 00-090-015** **Florida A&M University** **3258**  
 SUMMER BRIDGE PROGRAM 'THE ENGINEERING CONCEPTS INSTITUTE'  
*Period Obligations*  
 06/17/1988-06/24/1994 FY93: \$54,356 TOTAL: \$268,605  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 W TOLIVER HQ/Y B FREEMAN 49-Engr, NEC  
 ....J D DIGGS

**NAG 2-727** **Florida Atlantic University** **3265**  
 COMPUTATIONAL ASPECTS OF HELICOPTER TRIM ANALYSIS AND DAMPING LEVELS FROM FLOQUET THEORY  
*Period Obligations*  
 08/26/1991-07/31/1992 FY93: \$0 TOTAL: \$15,479  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 G H GAONKAR ARC/R A ORMISTON 41-Aero Engr

**NGT 00-090-030** **Florida A&M University** **3259**  
 PROJECT IMAGE - INCREAS ING MINORITY ACCESS TO GRADUATE ENGINEERING  
*Period Obligations*  
 03/14/1990-11/14/1993 FY93: \$652,709 TOTAL: \$2,226,791  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 F S HUMPHRIES HQ/L WARREN 49-Engr, NEC  
 ....M MARGOLIS

**NAG 2-797** **Florida Atlantic University** **3266**  
 SENSITIVITY OF LAG-DAMPING PREDICTIONS TO STRUCTURAL MODELING APPROXIMATIONS OF ISOLATED ROTORS IN.  
*Period Obligations*  
 08/17/1992-07/31/1994 FY93: \$32,625 TOTAL: \$63,918  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 G H GAONKAR ARC/R A ORMISTON 41-Aero Engr

**NGT 00-090-107** **Florida A&M University** **3260**  
 UNDERGRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 09/17/1992-08/14/1994 FY93: \$12,000 TOTAL: \$24,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 E R TOSSIE HQ/D K RUSSELL 99-Multi-Discip

**NAG 3-1006** **Florida Atlantic University** **3267**  
 DEVELOPMENT OF A SIMPLIFIED PERFORMANCE SIMULATION OF THE SPACESHUTTLE MAIN ENGINE  
*Period Obligations*  
 03/11/1989-03/17/1992 FY93: \$0 TOTAL: \$158,171  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A DUYAR LERC/W C MARRILL 46-Mech Engr

**NGT 00-090-181** **Florida A&M University** **3261**  
 UNDERGRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 08/27/1993-08/14/1994 FY93: \$12,000 TOTAL: \$12,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 E R TOSSIE HQ/D K RUSSELL 99-Multi-Discip

**NAG 3-1198** **Florida Atlantic University** **3268**  
 A MODEL BASED FAILURE DIAGNOSIS SYSTEM BASED ON REAL TIME IDENTIFICATION FOR HELICOPTER ENGINES  
*Period Obligations*  
 08/28/1990-03/07/1994 FY93: \$40,499 TOTAL: \$176,020  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A DUYAR LERC/J S LITT 49-Engr, NEC



**NASA'S UNIVERSITY PROGRAM**  
**FLORIDA (Continued)**

**NAG 3-1314** **Florida Atlantic University** **3269**  
 THE SIMULATION OF DISLOCATION GENERATION OF GAAS C  
 RYSTALS DURING BRIDGMAN GROWTH  
*Period* *Obligations*  
 12/30/1991-12/31/1993 FY93: \$62,905 TOTAL: \$85,684  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 C T TSAI LERC/A CHAIT 47-Materials Engr

**NAG10-104** **Florida Atlantic University** **3276**  
 AN INVESTIGATION OF ENVIRONMENT SENSITIVE TRACTURE  
 BEHAVIOR OF STEEL ALLOYS IN SEAWATER  
*Period* *Obligations*  
 06/01/1992-05/31/1994 FY93: \$50,739 TOTAL: \$104,306  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 S M LIPKA KSC/L MACDOWELL 54-Env Biology

**NAG 3-1324** **Florida Atlantic University** **3270**  
 MODELING OF THE SSME USING NEURAL NETWORKS  
*Period* *Obligations*  
 02/11/1992-05/06/1994 FY93: \$45,984 TOTAL: \$105,887  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 A DUYAR LERC/T H GUO 41-Aero Engr

**NAG10-108** **Florida Atlantic University** **3277**  
 INDUSTRY LINKAGE ENHANCEMENT FOR TECH TRANSFER THRU  
 INNOVATIVE COMMUNICATION TECHNIQUES  
*Period* *Obligations*  
 08/03/1992-07/14/1993 FY93: \$0 TOTAL: \$25,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 E SKELLINGS KSC/P ELFREY 99-Multi-Discip

**NAG 3-1435** **Florida Atlantic University** **3271**  
 ELECTROCHEMICAL SYNTHESIS OF COPPER/REFRACTORY MET AL  
 COATED CARBON FIBER PRECURSOR FOR METAL MAT CO  
*Period* *Obligations*  
 01/19/1993-01/14/1994 FY93: \$35,908 TOTAL: \$35,908  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 S M LIPKA LERC/R V MINER 47-Materials Engr

**NAS 3-26956** **Florida Atlantic University** **3278**  
 ACTS PROPAGATION EXPERIMENTS  
*Period* *Obligations*  
 06/21/1993-10/21/1995 FY93: \$3,097,372 TOTAL: \$3,097,372  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 H F HELMKEN LERC/R J GUNDERMAN 19-Phys Sci, NEC

**NAGW 989** **Florida Atlantic University** **3272**  
 GROUND BASE COLUMN ABUNDANCE OF ATOMSP. HYDROXYL  
*Period* *Obligations*  
 12/01/1986-03/31/1993 FY93: \$36,933 TOTAL: \$181,702  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 C R BURNETT HQ/J J MARGITAN 31-Atmos Sci  
 ....R T WATSON

**NCC10-5** **Florida Atlantic University** **3279**  
 RESPONSE OF STRUCTURES AND EQUIP TO ACOUSTIC EXCITA-  
 TIONS..W/BONDED UNCERTAIN PARAMETERS  
*Period* *Obligations*  
 05/01/1990-04/30/1994 FY93: \$24,000 TOTAL: \$298,836  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 Y K LIN KSC/R CAIMI 99-Multi-Discip  
 I ELISHAKOFF

**NAGW 2778** **Florida Atlantic University** **3273**  
 CENTER FOR COMMERCIAL DEVELOPMENT OF SPACE COMMUNI-  
 CATIONS  
*Period* *Obligations*  
 01/23/1992-10/31/1993 FY93: \$1,000,000 TOTAL: \$2,000,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 W GLENN HQ/V CEVENINI 99-Multi-Discip  
 J SHEPPERD ....C PITTMAN

**NAG 1-1541** **Florida Institute of Technology** **3280**  
 STRUCTURE OF TURBULENCE IN THREE-DIMENSIONAL BOUNDARY  
 LAYERS  
*Period* *Obligations*  
 08/25/1993-11/19/1993 FY93: \$9,998 TOTAL: \$9,998  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 C S SUBRAMANIAN LARC/M J WALSH 41-Aero Engr

**NAG10-79** **Florida Atlantic University** **3274**  
 THE EFFECT OF TRAIN RATE ON THE STRESS CORROSION  
 CRACKING SUSCEPTIBILITY OF ENGINEERING ALLOYS  
*Period* *Obligations*  
 01/14/1991-08/13/1992 FY93: \$0 TOTAL: \$67,881  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 S M LIPKA KSC/L MACDOWELL 43-Chem Engr

**NAG 5-1497** **Florida Institute of Technology** **3281**  
 RADIATION-INDUCED ROTATION OF SMALL CELESTRIAL BOD IES  
*Period* *Obligations*  
 03/13/1991-03/31/1992 FY93: \$2 TOTAL: \$14,998  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 N Y MISCONI GSFC/S J PADDACK 13-Physics  
 E T RUSK

**NAG10-83** **Florida Atlantic University** **3275**  
 DEVELOPMENT OF SELF-SEALING TUB-FITTINGS FOR CRYOGENIC  
 APPLICATIONS  
*Period* *Obligations*  
 05/28/1991-08/30/1993 FY93: \$0 TOTAL: \$154,458  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 W L CHOW KSC/M LITTLEFIELD 46-Mech Engr

**NAG 8-195** **Florida Institute of Technology** **3282**  
 PROJECT JOVE  
*Period* *Obligations*  
 05/24/1991-06/20/1994 FY93: \$27,500 TOTAL: \$95,203  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 J D PATTERSON MSFC/F SIX 11-Astronomy

**NASA'S UNIVERSITY PROGRAM**  
**FLORIDA (Continued)**

**NAG 8-781 Florida Institute of Technology 3283**  
 IMPROVEMENT OF PROGRAM TO CALCULATE ELECTRONIC  
 PROPERTIES OF NARROW BAND GAP MATERIALS  
*Period Obligations*  
 05/23/1989-06/14/1992 FY93: \$0 TOTAL: \$62,122  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J D PATTERSON MSFC/S L LEHOCZKY 13-Physics  
 ....G L PERRY

**NAG 8-941 Florida Institute of Technology 3284**  
 ELECTRONIC CHARACTERIZATION OF DEFECTS IN NARROW GAP  
 SEMICONDUCTORS  
*Period Obligations*  
 11/23/1992-11/24/1993 FY93: \$35,002 TOTAL: \$35,002  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J D PATTERSON MSFC/S L LEHOCZKY 13-Physics

**NAG10-89 Florida Institute of Technology 3285**  
 DEVELOPMENT AND VERIFICATION OF METHODS FOR PREDICTING  
 FLOW RATES  
*Period Obligations*  
 06/21/1991-01/31/1993 FY93: \$3,837 TOTAL: \$61,163  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J M RUSSELL KSC/R C RAPSON 99-Multi-Discip

**NAG10-97 Florida Institute of Technology 3286**  
 DETERMINE EFFECTS OF TOPOGRAPHY AND STRUCTURES ON  
 WIND-FLOW PATTERNS AT NASA/KSC  
*Period Obligations*  
 02/10/1992-02/09/1993 FY93: \$0 TOTAL: \$44,937  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D T RESIO KSC/J ZYSKO 54-Env Biology

**NAG10-98 Florida Institute of Technology 3287**  
 HYDROGEN LEAK DETECTION TECHNOLOGY  
*Period Obligations*  
 02/12/1992-08/31/1994 FY93: \$35,000 TOTAL: \$108,172  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R G BARILE KSC/W E LARSON 43-Chem Engr

**NAG10-106 Florida Institute of Technology 3288**  
 RAPID SUSCEPTIBILITY TESTING OF MYCOBACTERIUM AVIUM  
 COMPLEX AND TUBERCULOSIS ISOLATED AIDS PATIENT  
*Period Obligations*  
 06/01/1992-05/31/1994 FY93: \$49,998 TOTAL: \$99,996  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A M DHOPE KSC/B WILLIAMS 56-Medical Sciences

**NAS 8-39385 Florida Institute of Technology 3289**  
 MODEL-BASED REASONING FOR POWER SYSTEM MANAGEMENT  
 USING KATE AND THE SSM/PMAD BREADBOARD  
*Period Obligations*  
 03/09/1992-12/31/1993 FY93: \$0 TOTAL: \$91,473  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R A MORRIS MSFC/L F LOLLAR 45-Elec Engr  
 ....B K WALLS

**NGT 00-050-967 Florida Institute of Technology 3290**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 06/30/1992-06/30/1993 FY93: \$0 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R C WEIGEL KSC/B MARTIN 51-Biological Sci

**NGT 00-051-086 Florida Institute of Technology 3291**  
 GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 06/01/1993-06/30/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 T D OSWALT HQ/D HOLLAND 42-Astro Engr

**NAG 1-421 Florida State University 3292**  
 COMPUTATION OF LARGE TURBULENCE STRUCTURES AND NOISES  
 OF SUPERSONIC JETS  
*Period Obligations*  
 12/01/1983-12/31/1993 FY93: \$75,000 TOTAL: \$640,962  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 C K TAM LARC/R A GOLUB 41-Aero Engr  
 ....T D NORUM

**NAG 1-862 Florida State University 3293**  
 SPECTRAL SOLUTION OF DISCONTINUOUS HYPERBOLIC PROB  
 LEMS  
*Period Obligations*  
 03/14/1988-05/07/1994 FY93: \$0 TOTAL: \$164,768  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D A KOPRIVA LARC/T A ZANG 41-Aero Engr  
 ....A KUMAR

**NAG 1-1312 Florida State University 3294**  
 INITIAL RESEARCH FOR TRACE-A  
*Period Obligations*  
 08/01/1991-02/28/1994 FY93: \$290,000 TOTAL: \$447,774  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 T N KRISHNAMURTI LARC/J FISHMAN 31-Atmos Sci  
 H E FUELBERG ....J M HOELL

**NAG 1-1497 Florida State University 3295**  
 BASIC INVESTIGATION OF FLUID-ACOUSTIC INTERACTIONS IN A  
 SUPERSONIC RECTANGULAR JET EJECTOR  
*Period Obligations*  
 03/30/1993-03/31/1994 FY93: \$75,000 TOTAL: \$75,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A KROTHAPALLI LARC/J M SEINER 41-Aero Engr  
 C ROSS

**NAG 2-809 Florida State University 3296**  
 AN INVESTIGATION OF THE UNCERTAINTIES IN VELOCITY AND  
 VORTICITY ESTIMATES USING PIV  
*Period Obligations*  
 10/13/1992-07/31/1993 FY93: \$68,586 TOTAL: \$68,586  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 L LOURENCO ARC/Y C CHO 46-Mech Engr

**NASA'S UNIVERSITY PROGRAM**  
**FLORIDA (Continued)**

**NAG 3-1267** **Florida State University** **3297**  
DIRECT NUMERICAL SIMULATION OF HIGH-SPEED JET FLOW AND NOISE RADIATION  
*Period* *Obligations*  
04/05/1991-11/30/1993 FY93: \$80,000 TOTAL: \$220,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
K W TAM LERC/D L HUFF 41-Aero Engr

**NAG 5-1660** **Florida State University** **3304**  
VARIATIONAL DATA ASSIMILATION WITH SEMI-IMPLICIT S EMI-LAGRANGIAN SHALLOW WATER EQUATION MODEL  
*Period* *Obligations*  
07/15/1991-11/30/1993 FY93: \$69,906 TOTAL: \$229,906  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
I M NAVON GSFC/J R BATES 31-Atmos Sci

**NAG 3-1284** **Florida State University** **3298**  
THEOR STUDIES OF RESID ACCEL INA MICROGRAV ENVIR: STOCHASTIC FORMULATION OF FLUID FLOW PHENOMENA  
*Period* *Obligations*  
06/14/1991-05/31/1994 FY93: \$161,607 TOTAL: \$456,196  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J VINALS LERC/T K GLASGOW 47-Materials Engr

**NAG 5-1869** **Florida State University** **3305**  
COMPARISON OF RADAR-DERIVED MICROPHYSICAL FIELDS W ITH OTHER OBSERVATIONS  
*Period* *Obligations*  
01/24/1992-01/31/1994 FY93: \$50,000 TOTAL: \$149,971  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
P S RAY GSFC/G M HEYMSFIELD 31-Atmos Sci

**NAG 5-764** **Florida State University** **3299**  
RELATING MULTITEMPORAL METEOROLOGICAL SATELLITE DATA TO CLIMATOLOGICAL DATA FOR AFRICA  
*Period* *Obligations*  
04/01/1986-09/30/1992 FY93: \$0 TOTAL: \$209,225  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
S E NICHOLSON GSFC/B N HOLBEN 39-Env Sci, NEC  
C J TUCKER

**NAG 5-2072** **Florida State University** **3306**  
QUANTIFYING THE RESPONSE OF A BIOSPHERE-BOUNDARY L AYER-RADIATIVE TRANSFER PROCESS MODEL TO . . .  
*Period* *Obligations*  
08/25/1992-08/31/1993 FY93: \$75,000 TOTAL: \$75,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
E A SMITH GSFC/F G HALL 39-Env Sci, NEC

**NAG 5-815** **Florida State University** **3300**  
PROGNOSTIC AND DIAGNOSTIC STUDIES OF WAVE-MEAN FLOW AND MEAN-MEA FLOW INSTRUCTIONS  
*Period* *Obligations*  
07/15/1986-11/14/1993 FY93: \$45,000 TOTAL: \$601,714  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R L PFEFFER GSFC/M HELFAND 31-Atmos Sci

**NAG 8-653** **Florida State University** **3307**  
GRANT ENTITLED 'AN EVALUATION OF SATELLITE DERIVED HUMIDITY AND ITS RELATIONSHIP TO CONVECTIVE DEVEL  
*Period* *Obligations*  
12/01/1987-12/07/1992 FY93: \$0 TOTAL: \$352,852  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
H FUELBERG MSFC/H J CHRISTAIN 31-Atmos Sci  
..../G S WILSON

**NAG 5-1587** **Florida State University** **3301**  
APPLICATION OF TRMM DATA TO THE STUDY OF AFRICAN CLIMATE  
*Period* *Obligations*  
05/23/1991-06/14/1994 FY93: \$55,000 TOTAL: \$177,770  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
S E NICHOLSON GSFC/D SHORT 31-Atmos Sci

**NAG 8-760** **Florida State University** **3308**  
POTENTIAL VARIETY INDEX.  
*Period* *Obligations*  
01/19/1989-03/01/1992 FY93: \$0 TOTAL: \$193,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
A BARCLON MSFC/J KAUFMAN 31-Atmos Sci  
H WENG ....J W KAUFMAN

**NAG 5-1595** **Florida State University** **3302**  
USE OF MICROWAVE RAINFALL AND PRECIPITABLE WATER E STIMATES IN GLOBAL MODEL INITIALIZATION AND PRE..  
*Period* *Obligations*  
05/13/1991-05/31/1994 FY93: \$150,966 TOTAL: \$230,910  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
T N KRISHNAMURTI GSFC/W LAU 31-Atmos Sci

**NAG 8-911** **Florida State University** **3309**  
THE EVALUATION AND USE OF GOES-I-M WATER VAPOR PRO DUCTS FOR HYDROLOGIC PROCESS STUDIES  
*Period* *Obligations*  
05/21/1992-06/30/1994 FY93: \$61,039 TOTAL: \$105,797  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
H E FUELBERG MSFC/G J JEDLOVER 31-Atmos Sci  
....J E ARNOLD

**NAG 5-1602** **Florida State University** **3303**  
STUDY OF VERTICALLY RESOLVED PRECIPITATION RETRIEV AL FROM DECONVOLVED PASSIVE MICROWAVE MEASUREMENT  
*Period* *Obligations*  
05/13/1991-05/31/1994 FY93: \$70,000 TOTAL: \$249,800  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
E A SMITH GSFC/A NEGRI 31-Atmos Sci

**NAG 8-914** **Florida State University** **3310**  
TROPICAL ANALYSIS AND PREDICTION IMPACT STUDY FROM SATELLITE OBSERVATIONS  
*Period* *Obligations*  
05/26/1992-05/31/1994 FY93: \$90,000 TOTAL: \$181,180  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
T N KRISHNAMURTI MSFC/D FITZJARRALD 31-Atmos Sci

**NASA'S UNIVERSITY PROGRAM  
FLORIDA (Continued)**

**NAG 8-916 Florida State University 3311**  
ANALYSIS OF SURFACE AND LAND ATMOSPHERE BUDGET MEASUREMENTS  
*Period* *Obligations*  
06/03/1992-05/31/1994 FY93: \$56,050 TOTAL: \$111,050  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
E A SMITH MSFC/S J GOODMAN 31-Atmos Sci

**NAGW 3087 Florida State University 3319**  
EASTERN BOUNDARY EFFECTS ON GENERAL CIRCULATION STRUCTURE  
*Period* *Obligations*  
05/29/1992-05/31/1994 FY93: \$69,488 TOTAL: \$138,827  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
W K DEWAR HQ/D ADAMEC 31-Atmos Sci  
...../R A SCHIFFER

**NAG 8-942 Florida State University 3312**  
AN EVALUATION OF SEVERAL TECHNIQUES FOR COMPUTING GOES DATA  
*Period* *Obligations*  
12/15/1992-12/31/1993 FY93: \$14,241 TOTAL: \$14,241  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
H E FUELBERG MSFC/G J JEDLOVEC 31-Atmos Sci  
...../J E ARNOLD

**NAGW 3101 Florida State University 3320**  
AFRICAN CLIMATE AND VEGETATION STUDIES RELATED TO THE HAPEX-SAHEL EXPERIMENT  
*Period* *Obligations*  
06/22/1992-09/30/1993 FY93: \$0 TOTAL: \$31,657  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
S E NICHOLSON HQ/R E MURPHY 31-Atmos Sci  
...../D M BUTLER

**NAGW 985 Florida State University 3313**  
DATA ASSIMUL. IN OCEAN CIRCULATION  
*Period* *Obligations*  
11/01/1986-04/30/1994 FY93: \$165,000 TOTAL: \$993,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J J O'BRIEN HQ/G S LAGERLOEF 33-Oceanography  
...../W S WILSON

**NAGW 3109 Florida State University 3321**  
SATELLITE STUDIES OF PRECIPITATION AND EVAPOTRANSPIRATION FEEDBACK  
*Period* *Obligations*  
06/17/1992-06/30/1994 FY93: \$90,000 TOTAL: \$142,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
E A SMITH HQ/R E MURPHY 31-Atmos Sci  
...../D E WICKLAND

**NAGW 991 Florida State University 3314**  
MODELING OF MICROWAVE RADIATIVE TRANSFER  
*Period* *Obligations*  
09/30/1986-10/31/1993 FY93: \$0 TOTAL: \$625,686  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
E A SMITH HQ/J C DODGE 31-Atmos Sci  
...../A TUYAHOV

**NAGW 3326 Florida State University 3322**  
THEORETICAL STUDIES OF THE TRANSITION IN LIQUID  
*Period* *Obligations*  
01/06/1993-12/31/1993 FY93: \$60,000 TOTAL: \$60,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
E MANOUSAKIS HQ/M C LEE 12-Chemistry

**NAGW 1823 Florida State University 3315**  
CARBON AND HYDROGEN ISOTOPIC COMPOSITION OF METHANE  
*Period* *Obligations*  
08/28/1989-12/31/1993 FY93: \$0 TOTAL: \$201,742  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J P CHANTON HQ/M J KURYLO 33-Oceanography  
...../R T WATSON

**NAGW 3495 Florida State University 3323**  
NAGW-3495/FLORIDA STATE UNIV/MARINE PHYTOPLANKTON ANNUAL CARBON PRODUCTION, NEW NITROGEN PRODUCTION  
*Period* *Obligations*  
04/22/1993-12/31/1993 FY93: \$10,000 TOTAL: \$10,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R IVERSON HQ/R E MURPHY 33-Oceanography  
...../D M BUTLER

**NAGW 1840 Florida State University 3316**  
DIFFERENTIATING THE ROLE OF LAND SURFACE VARIABILITY  
*Period* *Obligations*  
11/29/1989-10/31/1992 FY93: \$0 TOTAL: \$265,499  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
E A SMITH HQ/G ASRAR 39-Env Sci, NEC  
...../R E MRUPHY

**NAG10-47 Florida State University 3324**  
APPLICATION OF VAS SATELLITE IMAGERY TO THUNDERSTORMS  
*Period* *Obligations*  
08/01/1988-04/29/1993 FY93: \$0 TOTAL: \$169,980  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
H E FUELBERG KSC/J R NICHOLSON 31-Atmos Sci

**NAGW 1871 Florida State University 3317**  
ROCK-INHABITING MICROORGANISMS IN HOT AND COLD DESERTS  
*Period* *Obligations*  
10/18/1989-10/14/1993 FY93: \$30,000 TOTAL: \$410,370  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
E I FRIEDMANN HQ/J D RUMMEL 54-Env Biology

**NAS 5-30932 Florida State University 3325**  
EOS TEAM MEMBER SUPPORT FOR LAWS  
*Period* *Obligations*  
07/25/1990-04/14/1993 FY93: \$0 TOTAL: \$125,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
T N KRISHNAMURTI GSFC/G SOFFEN 39-Env Sci, NEC

**NAGW 2782 Florida State University 3318**  
GAS EXCHANGE IN WETLANDS CONTROLS AND REMOTE SENSING  
*Period* *Obligations*  
12/02/1991-09/30/1993 FY93: \$0 TOTAL: \$50,998  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J P CHANTON HQ/M M AVERNER 39-Env Sci, NEC

**NGT 00-030-056 Florida State University 3326**  
NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period* *Obligations*  
08/30/1991-12/31/1993 FY93: \$0 TOTAL: \$44,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
C A JONES HQ/D M BUTLER 33-Oceanography  
J O'BRIEN ...../G S WILSON

**NASA'S UNIVERSITY PROGRAM  
FLORIDA (Continued)**

**NGT 00-030-170 Florida State University 3327**  
NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
08/23/1993-08/31/1996 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J CHANTON HQ/G ASRAR 33-Oceanography  
...../D M BUTLER

**NGT 00-030-214 Florida State University 3328**  
NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
08/25/1993-12/31/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
H E FUELBERG HQ/G ASRAR 31-Atmos Sci  
...../D M BUTLER

**NGT 00-050-437 Florida State University 3329**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
08/14/1989-07/31/1992 FY93: \$0 TOTAL: \$62,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D W STUART HQ/E SCHWARTZ 19-Phys Sci, NEC

**NGT 00-050-475 Florida State University 3330**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
08/31/1989-07/31/1992 FY93: \$0 TOTAL: \$62,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
S E NICHOLSON HQ/F C OWENS 19-Phys Sci, NEC

**NGT 00-050-484 Florida State University 3331**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
08/02/1989-08/27/1992 FY93: \$0 TOTAL: \$62,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J J O'BRIEN HQ/F C OWENS 19-Phys Sci, NEC

**NGT 00-050-524 Florida State University 3332**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
08/17/1989-01/31/1994 FY93: \$0 TOTAL: \$73,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
H E FUELBERG HQ/F C OWENS 31-Atmos Sci

**NGT 00-050-653 Florida State University 3333**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
08/30/1990-08/26/1993 FY93: \$0 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J J O'BRIEN HQ/F C OWENS 33-Oceanography

**NGT 00-050-983 Florida State University 3334**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
11/27/1992-12/14/1994 FY93: \$44,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
H E FUELBERG KSC/B MILLER 31-Atmos Sci

**NGT 00-070-062 Florida State University 3335**  
NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
MINORITY FOCUS PROGRAM  
*Period Obligations*  
12/01/1987-07/31/1993 FY93: \$0 TOTAL: \$84,472  
*Prin. Invest. NASA Tech. Officer CASE Category*  
S E NICHOLSON HQ/F C OWENS 31-Atmos Sci

**NGT 00-070-095 Florida State University 3336**  
NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
MINORITY FOCUS PROGRAM  
*Period Obligations*  
08/22/1988-08/14/1992 FY93: \$4,896 TOTAL: \$52,604  
*Prin. Invest. NASA Tech. Officer CASE Category*  
H E FUELBERG HQ/F C OWENS 33-Oceanography

**NGT 00-070-258 Florida State University 3337**  
NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
MINORITY FOCUS PROGRAM  
*Period Obligations*  
06/16/1992-07/31/1994 FY93: \$22,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
T N KRISHNAMURTI MSFC/F SIX 46-Mech Engr

**NGT 00-070-273 Florida State University 3338**  
NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
MINORITY FOCUS PROGRAM  
*Period Obligations*  
07/15/1992-07/31/1994 FY93: \$22,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
S NICHOLSON GSFC/G SOFFEN 31-Atmos Sci

**NGT 00-090-108 Florida State University 3339**  
UNDERGRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
09/24/1992-08/14/1994 FY93: \$12,000 TOTAL: \$24,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
T J HARRISON HQ/D K RUSSELL 99-Multi-Discip

**NAG 1-1322 The University of Central Florida 3340**  
RELIABLE SPACED-BASED LASERS  
*Period Obligations*  
08/07/1991-08/06/1992 FY93: \$1 TOTAL: \$10,001  
*Prin. Invest. NASA Tech. Officer CASE Category*  
C M STICKLEY LARC/L R MCMASTER 13-Physics  
...../W E MILLER

**NAG 1-1402 The University of Central Florida 3341**  
VORTEX MIXING IN COMPRESSIBLE FLOW  
*Period Obligations*  
02/20/1992-02/21/1994 FY93: \$14,999 TOTAL: \$44,998  
*Prin. Invest. NASA Tech. Officer CASE Category*  
L CHEW LARC/S K ROBINSON 41-Aero Engr

**NAG 1-1502 The University of Central Florida 3342**  
NEW DIODE PUMPED SOLID STATE LASERS  
*Period Obligations*  
04/27/1993-04/30/1994 FY93: \$30,000 TOTAL: \$30,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
B CHAI LARC/J C BARNES 47-Materials Engr  
G LUTTE ...../W E MILLER



**NASA'S UNIVERSITY PROGRAM  
FLORIDA (Continued)**

**NAG10-123 The University of Central Florida 3357**  
RENEWABLE HYDROGEN PRODUCTION AND APPLICATIONS PROGRAM

Period	Obligations	
06/15/1993-10/01/1993	FY93: \$25,000	TOTAL: \$25,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
D L BLOCK	KSC/A L BAIN	43-Chem Engr

**NAG10-126 The University of Central Florida 3358**  
ANALYSIS OF MAGNETIC FIELD LEVELS FROM AC HIGH AND LOW VOTAGE POWERLINES AND PANELS AT KSC

Period	Obligations	
07/15/1993-07/26/1994	FY93: \$50,000	TOTAL: \$50,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
C G CHRISTODOULOU	KSC/J E HANLON	45-Elec Engr

**NCC10-3 The University of Central Florida 3359**  
COOPERATIVE AGREEMENT FOR TECHNOLOGY DEVELOPMENT

Period	Obligations	
12/12/1989-12/23/1993	FY93: \$7,838	TOTAL: \$2,691,375
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
S L RICE	KSC/T DAVIS	99-Multi-Discip

**NGT 00-051-099 The University of Central Florida 3360**  
GRADUATE STUDENT RESEARCHERS PROGRAM

Period	Obligations	
07/05/1993-07/31/1994	FY93: \$22,000	TOTAL: \$22,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
W SMART	KSC/B MARTIN	49-Engr, NEC

**NGT 00-060-002 The University of Central Florida 3361**  
SUMMER FACULTY FELLOWSHIP PROGRAM RESEARCH

Period	Obligations	
03/31/1988-12/31/1993	FY93: \$253,398	TOTAL: \$1,621,211
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
E R HOSLER	HQ/A S MCGEE	49-Engr, NEC
	....E T SCHWARTZ	

**NGT 00-090-046 The University of Central Florida 3362**  
NASA SCHOLARS

Period	Obligations	
08/20/1991-08/31/1994	FY93: \$24,000	TOTAL: \$84,276
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
J SMITH	HQ/B WHITE	49-Engr, NEC
S RICE		

**NGT 00-090-059 The University of Central Florida 3363**  
SUMMER PROGRAM FOR ACADEMIC CAREERS IN ENGINEERING (SPACE)

Period	Obligations	
03/31/1992-03/31/1994	FY93: \$59,758	TOTAL: \$119,018
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
S RICE	HQ/B WHITE	49-Engr, NEC
J A SMITH		

**NGT 00-090-121 The University of Central Florida 3364**  
UNDERGRADUATE STUDENT RESEARCHERS PROGRAM (UMF)

Period	Obligations	
09/26/1992-08/14/1994	FY93: \$24,000	TOTAL: \$24,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
J A SMITH	HQ/D K RUSSELL	99-Multi-Discip

**NGT 00-090-122 The University of Central Florida 3365**  
UNDERGRADUATE STUDENT RESEARCHERS PROGRAM

Period	Obligations	
09/26/1992-08/14/1994	FY93: \$12,000	TOTAL: \$24,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
J SMITH	HQ/D K RUSSELL	99-Multi-Discip

**NGT 00-090-159 The University of Central Florida 3366**  
NASA KSC/UCF SPACE SCHOLARS PROGRAM

Period	Obligations	
05/20/1993-05/31/1994	FY93: \$47,900	TOTAL: \$47,900
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
J A SMITH	HQ/J M MACKALL	49-Engr, NEC

**NGT 00-090-170 The University of Central Florida 3367**  
UNDERGRADUATE STUDENT RESEARCHERS PROGRAM

Period	Obligations	
09/09/1993-08/14/1994	FY93: \$12,000	TOTAL: \$12,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
J SMITH	HQ/D K RUSSELL	99-Multi-Discip

**NAG 1-609 University of Florida 3368**  
INVESTIGATION OF TEMPERATURE AND CONCENTRATION OSCILLATIONS IN THE DIRECTIONAL SOLIDIFICATION OF PB SN

Period	Obligations	
07/12/1985-12/31/1993	FY93: \$29,327	TOTAL: \$523,284
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
T J ANDERSON	LARC/A L FRIPP	13-Physics
R NARAYANAN		

**NAG 1-1017 University of Florida 3369**  
SENSOR/ACTUATOR DYNAMICS IN THE ACTIVE CONTROL OF FLEXIBLE STRUCTURES

Period	Obligations	
07/03/1989-12/31/1992	FY93: \$601	TOTAL: \$125,535
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
D C ZIMMERMAN	LARC/S E WOODARD	46-Mech Engr

**NAG 1-1226 University of Florida 3370**  
MODELING STIFFNESS AND STRENGTH PROPERTIES OF TEXT ILE STRUCTURAL COMPOSITES D

Period	Obligations	
02/08/1991-09/30/1993	FY93: \$60,995	TOTAL: \$160,904
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
B V SANKAR	LARC/W C JACKSON	47-Materials Engr
	....C C POE	

**NAG 1-1262 University of Florida 3371**  
DEVELOPMENT OF A HYPERTHERMAL OXYGEN ATOM GENERATOR

Period	Obligations	
04/11/1991-04/14/1993	FY93: \$0	TOTAL: \$55,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
G B HOFUND	LARC/R A OUTLAW	47-Materials Engr
	....W E MEADOR	

**NASA'S UNIVERSITY PROGRAM  
FLORIDA (Continued)**

**NAG 1-1394 University of Florida 3372**  
APPLIED AERODYNAMICS EXPERIENCE FOR SECONDARY SCIENCE  
TEACHERS AND STUDENTS

Period	Obligations	
04/22/1992-04/13/1994	FY93: \$25,379	TOTAL: \$85,379
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
A JD	LARC/R L YANG	49-Engr, NEC
CARROLL	....E J PRIOR	

**NAG 1-1474 University of Florida 3373**  
A STUDY OF THE INTERACTION OF CONVECTION WITH  
SOLIDIFICATION

Period	Obligations	
01/12/1993-01/10/1994	FY93: \$60,126	TOTAL: \$60,126
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
T J ANDERSON	LARC/A L FRIPP	19-Phys Sci, NEC
R NARAYANAN		

**NAG 1-1486 University of Florida 3374**  
APPLICATION OF PRESSURE-SENSITIVE PAINT TO MASS BLEED  
INDUCED OSCILLATIONS TO SHOCK/BOUNDARY LAYER

Period	Obligations	
02/17/1993-02/11/1994	FY93: \$47,191	TOTAL: \$47,191
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
B F CARROL	LARC/W L SELLERS	41-Aero Engr

**NAG 2-667 University of Florida 3375**  
CONTINUED TESTING OF THE GALILEO LIGHTNING AND RA DIO  
EMISSION DETECTOR

Period	Obligations	
10/09/1990-11/30/1993	FY93: \$33,202	TOTAL: \$137,752
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
M A UMAN	ARC/R E YOUNG	31-Atmos Sci
	..../B CHIN	

**NAG 2-837 University of Florida 3376**  
BASIC AND APPLIED RESEARCH ON ION TRAP TANDEM MASS  
SPECTROMETRIC SYSTEMS

Period	Obligations	
05/24/1993-02/28/1994	FY93: \$75,000	TOTAL: \$75,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
R A YOST	ARC/C M WONG	12-Chemistry
	..../E P CONDON	

**NAG 3-1096 University of Florida 3377**  
IN-SITU MONITORING OF CRYSTAL GROWTH USING MEPHIST O

Period	Obligations	
12/26/1989-10/14/1994	FY93: \$314,000	TOTAL: \$706,022
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
G J ABBACHIAN	LERC/G J SANTORO	47-Materials Engr
F EBRAHIMI		
A B GOKHALE		

**NAG 3-1113 University of Florida 3378**  
NUM PRED OF AIRBLAST/ASSIST FUEL INJ IN RICH BURN/ QUICK  
QUENCH/LEAN BURN HI SPEED CIV TRANS COMBS

Period	Obligations	
01/04/1990-01/21/1994	FY93: \$90,000	TOTAL: \$317,965
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
G J MICKLOW	LERC/H L NGUYEN	12-Chemistry

**NAG 3-1187 University of Florida 3379**  
EJECTOR CODE CALIBRATION

Period	Obligations	
06/18/1990-03/06/1994	FY93: \$41,334	TOTAL: \$156,560
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
V P ROAN	LERC/L A BURKARDT	41-Aero Engr
W E LEAR	..../C A SNYDER	

**NAG 3-1293 University of Florida 3380**  
NUCLEAR GAS CORE PROPULSION PROGRAM

Period	Obligations	
07/25/1991-12/31/1993	FY93: \$0	TOTAL: \$140,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
N J DIAZ	LARC/J S CLARK	49-Engr, NEC
J ANGHAIE	..../J R STONE	

**NAG 3-1340 University of Florida 3381**  
LOW EMISSION COMBUSTOR NUMERICAL SIMULATION BY SUB  
COMPACT SYNTHESIS

Period	Obligations	
03/24/1992-12/14/1993	FY93: \$50,181	TOTAL: \$110,180
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
N S WINOWICH	LERC/K P KUNDU	46-Mech Engr
	..../J M DEUR	

**NAG 5-1290 University of Florida 3382**  
FEASIBILITY STUDY OF MODIFICATION TO THE GAMMA-RAY

Period	Obligations	
09/12/1989-03/31/1993	FY93: \$0	TOTAL: \$118,013
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
A C RESTER	GSFC/J I TROMBKA	19-Phys Sci, NEC
	..../S R FLOYD	

**NAG 5-1725 University of Florida 3383**  
ANALYSIS OF IRAS SOLAR SYSTEM DUST DATA

Period	Obligations	
08/15/1991-12/31/1992	FY93: \$0	TOTAL: \$66,095
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
S F DERMOTT	GSFC/D WEST	11-Astronomy

**NAG 8-177 University of Florida 3384**  
DEV HIGH ACCURACY CORRECTION SCHEMES FOR FLOW WITH  
STRONG SOURCE TERMS

Period	Obligations	
04/16/1991-06/28/1994	FY93: \$90,000	TOTAL: \$210,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
W SHYY	MSFC/K TUCKER	41-Aero Engr

**NAG 8-245 University of Florida 3385**  
JOVE

Period	Obligations	
08/20/1992-07/31/1993	FY93: \$0	TOTAL: \$19,947
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
R E WILSON	MSFC/F SIX	11-Astronomy

**NAG 8-280 University of Florida 3386**  
AUTOMATED SPACE ROPBTICS FOR SATELLITE RESCUE

Period	Obligations	
03/01/1993-12/31/1993	FY93: \$75,000	TOTAL: \$75,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
N FITZ-COY	MSFC/F SIX	49-Engr, NEC



**NASA'S UNIVERSITY PROGRAM  
FLORIDA (Continued)**

**NAG 8-946 University of Florida 3387**  
FUNDAMENTALS OF THERMOMIGRATION OF LIQUID ZONES THROUGH SOLIDS  
*Period* *Obligations*  
01/08/1993-01/06/1994 FY93: \$140,000 TOTAL: \$140,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
M J KAUFMAN MSFC/M F VOLZ 47-Materials Engr

**NAGW 2775 University of Florida 3394**  
ORBIT BASED PROBABILITY CALCULATIONS OF THE ORIGIN S OF STREAM METEORIDS AND DUST  
*Period* *Obligations*  
11/15/1991-10/31/1993 FY93: \$77,168 TOTAL: \$160,180  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
B A GUSTAFSON HQ/W L QUAIDE 11-Astronomy

**NAG 9-440 University of Florida 3388**  
DYNAMICS OF DUST AND THE COSMIC DUST COLLECTION FACILITY  
*Period* *Obligations*  
06/01/1990-06/01/1993 FY93: \$0 TOTAL: \$55,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
S F DERMOTT JSC/F HORZ 19-Phys Sci, NEC

**NAGW 2957 University of Florida 3395**  
SPECTROSCOPIC STUDIES OF POLYCYCLIC AROMATIC CATION S IN MATRICES  
*Period* *Obligations*  
03/04/1992-03/31/1994 FY93: \$65,000 TOTAL: \$97,500  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
M T VALA HQ/L J CAROFF 11-Astronomy

**NAG 9-630 University of Florida 3389**  
DYNAMICS OF DUST AND THE COSMIC DUST COLLECTION FACILITY  
*Period* *Obligations*  
08/10/1992-07/01/1994 FY93: \$15,000 TOTAL: \$40,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
S F DERMOTT JSC/F HORZ 11-Astronomy

**NAGW 3032 University of Florida 3396**  
NAGW-3032/UNIV MIAMI/GATHERING AND ANALYZING RADAR-RAINFALL DATA FROM OVERSEAS LOCATIONS TO COMPARE  
*Period* *Obligations*  
04/06/1992-12/31/1992 FY93: \$0 TOTAL: \$49,647  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
H W HISER HQ/J C DODGE 31-Atmos Sci  
...../A J TUYAHOV

**NAGW 1923 University of Florida 3390**  
DYNAMICS OF SATELLITES AND DUST PARTICLES  
*Period* *Obligations*  
01/24/1990-09/30/1993 FY93: \$83,000 TOTAL: \$332,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
S F DERMOTT HQ/T A MAXWELL 32-Geological Sci

**NAGW 3055 University of Florida 3397**  
NAGW-3055/UNIV FLORIDA/'1992 DARK MATTER WORKSHOP'  
*Period* *Obligations*  
04/27/1992-12/31/1992 FY93: \$0 TOTAL: \$2,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
P RAMOND HQ/L J CAROFF 11-Astronomy

**NAGW 2410 University of Florida 3391**  
ANALYSIS OF VOYAGER RADIO DATA FROM NEPTUNE  
*Period* *Obligations*  
03/15/1991-03/31/1994 FY93: \$54,434 TOTAL: \$160,159  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
T D CARR HQ/W L QUAIDE 19-Phys Sci, NEC

**NAGW 3237 University of Florida 3398**  
NAGW-3237/UNIV FLORIDA/ANALYSIS OF THE IRAS SOLAR SYSTEM DUST DATA  
*Period* *Obligations*  
10/21/1992-01/31/1994 FY93: \$5,000 TOTAL: \$5,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
S F DERMOTT HQ/L S LAPIANA 11-Astronomy  
...../G P NEWTON

**NAGW 2482 University of Florida 3392**  
NAGW-2482/UNIV FLORIDA/OPTICAL PROPERTIES OF FLUFF Y DUST-AGGREGATES IN COMET COMAE AND INTERPLANETARY  
*Period* *Obligations*  
05/23/1991-03/31/1994 FY93: \$82,938 TOTAL: \$165,186  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
B GUSTAFSON HQ/J T BERGSTRALH 11-Astronomy

**NAGW 3570 University of Florida 3399**  
CLINICAL PRACTICE LIBRARY OF MEDICINE  
*Period* *Obligations*  
05/13/1993-03/06/1994 FY93: \$254,920 TOTAL: \$254,920  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R R GRAMS HQ/R J WHITE 56-Medical Sciences

**NAGW 2524 University of Florida 3393**  
MESO-SCALE DYNAMICS OF THE BOREAL FOREST  
*Period* *Obligations*  
08/20/1991-12/31/1992 FY93: \$0 TOTAL: \$210,679  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
C S HOLLING HQ/R E MURPHY 39-Env Sci, NEC  
L H GUNDERSON ...../W S WILSON

**NAGW 3698 University of Florida 3400**  
DEVELOPMENT OF AN ECOLOGICAL ASSAY OF ECOSYSTEM AN D ANIMAL COMMUNITY STRUCTURE  
*Period* *Obligations*  
08/03/1993-05/31/1994 FY93: \$100,000 TOTAL: \$100,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
C S HOLLING HQ/D E WICKLAND 39-Env Sci, NEC  
L H GUNDERSON ...../A C JANETOS  
K H REDFORD

**NASA'S UNIVERSITY PROGRAM  
FLORIDA (Continued)**

**NAG10-41 University of Florida 3401**  
STUDY LIBRARY OF MEDICINE  
*Period* *Obligations*  
03/09/1987-03/06/1994 FY93: \$0 TOTAL: \$1,158,996  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R R GRAMS KSC/A KOLLER 56-Medical Sciences

**NAG10-100 University of Florida 3402**  
VOLATILE EVOLUTION FROM PLANTS GROWING IN A CLOSED ENVIRONMENT  
*Period* *Obligations*  
03/16/1992-03/15/1993 FY93: \$1 TOTAL: \$9,995  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
D J CANTLIFFE KSC/W M KNOTT 51-Biological Sci

**NAG10-102 University of Florida 3403**  
BASIC AND APPLIED RESEARCH ON MASS SPECTROMETRIC SYSTEMS  
*Period* *Obligations*  
03/30/1992-10/31/1993 FY93: \$0 TOTAL: \$80,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R A YOST KSC/W M KNOTT 59-Life Sci, NEC

**NAG10-109 University of Florida 3404**  
DEVELOPMENT PROTOTYPE KIENSTATIC PLATFORM FOR APPLICATION TO SPACE AND GROUND SERVICING TANKS  
*Period* *Obligations*  
11/25/1992-11/30/1993 FY93: \$51,597 TOTAL: \$51,597  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J DUFFY KSC/E RHODES 99-Multi-Discip

**NAS 3-26314 University of Florida 3405**  
ULTRA HIGH TEMPERATURE REACTOR AND ENERGY CONVERSI ON  
*Period* *Obligations*  
05/30/1991-05/07/1995 FY93: \$666,000 TOTAL: \$1,821,500  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
N J DIAZ LERC/H S BLOOMFIELD 13-Physics  
F ANGHAI  
E T DUGAN

**NASW 4676 University of Florida 3406**  
NASW-4676/UNIV OF FLORIDA/NASA RTTC LOCATED IN THE SOUTHEAST REGION OF THE U.S.  
*Period* *Obligations*  
12/20/1991-12/31/1993 FY93: \$1,020,000 TOTAL: \$1,770,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J R THORNTON HQ/F E PENARANDA 99-Multi-Discip

**NCC 2-825 University of Florida 3407**  
ROLE OF CORTICOSTEROIDS IN BONE LOSS DURING SPACE FLIGHT  
*Period* *Obligations*  
09/09/1993-12/31/1993 FY93: \$50,000 TOTAL: \$50,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
T WRONSKI ARC/C M WINGET 51-Biological Sci  
....G C JAHNS

**NCC 3-255 University of Florida 3408**  
ELECTRO-OPT ACT MONOMERS: SYN AND CHAR OF THIN FILMS OF LIQUID CRYSTALLIN SUBSTITUTED POLYACETYLENES  
*Period* *Obligations*  
03/04/1992-05/03/1994 FY93: \$36,322 TOTAL: \$56,714  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R S DURAN LERC/M A MEADOR 12-Chemistry

**NCC 8-20 University of Florida 3409**  
AN ELECTROCHEMICAL METHOD TO MEASURE DIFFUSIVITY IN LIQUID METALS  
*Period* *Obligations*  
01/08/1993-01/06/1994 FY93: \$135,000 TOTAL: \$135,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R NARAYANAN MSFC/D A WATRING 47-Materials Engr  
T J ANDERSON  
A L FRIP

**NGT 00-040-015 University of Florida 3410**  
NATIONAL SPACE GRANT COLLEGE AND FELLOWSHIP PROGRAM  
*Period* *Obligations*  
10/17/1989-01/31/1995 FY93: \$492,806 TOTAL: \$1,675,609  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
M A ELSEMBERG HQ/E T SCHWARTZ 99-Multi-Discip

**NGT 00-050-631 University of Florida 3411**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period* *Obligations*  
07/09/1990-06/30/1992 FY93: \$0 TOTAL: \$44,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
M J KAUFMAN HQ/F C OWENS 47-Materials Engr

**NGT 00-050-734 University of Florida 3412**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period* *Obligations*  
08/30/1991-08/31/1992 FY93: \$0 TOTAL: \$22,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
H DERENDORT HQ/F C OWENS 56-Medical Sciences

**NGT 00-050-805 University of Florida 3413**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period* *Obligations*  
07/24/1991-06/30/1994 FY93: \$22,000 TOTAL: \$59,129  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J H HUNTER HQ/J ALEXANDER 11-Astronomy

**NGT 00-050-815 University of Florida 3414**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period* *Obligations*  
06/10/1991-06/30/1994 FY93: \$22,000 TOTAL: \$64,850  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R E WILSON HQ/F C OWENS 11-Astronomy

**NGT 00-050-959 University of Florida 3415**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period* *Obligations*  
06/25/1992-07/31/1994 FY93: \$22,000 TOTAL: \$44,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
H CAMPINS HQ/J K ALEXANDER 11-Astronomy

**NASA'S UNIVERSITY PROGRAM  
FLORIDA (Continued)**

**NGT 00-050-968 University of Florida 3416**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
07/23/1992-06/30/1994 FY93: \$22,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D J CANTLIFFE KSC/W CAMP 55-Agriculture Sci

**NAG 5-2207 University of Miami 3423**  
GPS GEODETIC MONITORING OF SOUTH AMERICA - NOZCA P LATE CONVERGENCE (SNAPP)  
*Period Obligations*  
03/09/1993-03/14/1993 FY93: \$62,000 TOTAL: \$62,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
T H DIXON GSFC/B G BILLS 32-Geological Sci

**NGT 00-070-282 University of Florida 3417**  
NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED MINORITY FOCUS PROGRAM  
*Period Obligations*  
06/21/1992-06/30/1994 FY93: \$22,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
M J KAUFMAN HQ/D K RUSSELL 47-Materials Engr

**NAG 5-2208 University of Miami 3424**  
VOLCANO MONITORING FOR ERUPTION PREDICTION AND FOR ECASTING USING THE GLOBAL POSITIONING SYSTEM  
*Period Obligations*  
03/09/1993-03/14/1994 FY93: \$40,000 TOTAL: \$40,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
T H DIXON GSFC/B G BILLS 32-Geological Sci

**NGT 00-070-332 University of Florida 3418**  
NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED MINORITY FOCUS PROGRAM  
*Period Obligations*  
06/29/1993-06/30/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
T D CARR HQ/D K RUSSELL 11-Astronomy

**NAG 5-2209 University of Miami 3425**  
PRESENT DAY KINEMATICS AND EVALUATION OF TRANSPENINSULA SLIP IN NORTHERN BAJA CALIFORNIA  
*Period Obligations*  
03/09/1993-03/14/1994 FY93: \$74,998 TOTAL: \$74,998  
*Prin. Invest. NASA Tech. Officer CASE Category*  
T H DIXON GSFC/B G BILLS 32-Geological Sci

**NAG 1-1199 University of Miami 3419**  
RAILGUN STUDIES FOR NASA APPLICATIONS RAILGUN STUDIES FOR NASA APPLICATIONS  
*Period Obligations*  
12/10/1990-09/30/1993 FY93: \$0 TOTAL: \$76,627  
*Prin. Invest. NASA Tech. Officer CASE Category*  
Y C THIO LARC/W I SCALLION 13-Physics  
....R D WITCOFAKI

**NAGW 273 University of Miami 3426**  
AN INVESTIGATION OF THE UNTILITY OF OCEAN COLOR IMAGERY FOR DELINEATION OF OCEANIC PROCESSES IN THE  
*Period Obligations*  
11/01/1981-05/31/1993 FY93: \$0 TOTAL: \$2,584,148  
*Prin. Invest. NASA Tech. Officer CASE Category*  
O BROWN HQ/M R LEWIS 33-Oceanography  
O B BROWN ....W S WILSON  
R H EVANS

**NAG 1-1229 University of Miami 3420**  
CHEMICAL CLIMATOLOGY OF NITROGEN AND SULFUR SPECIES OVER THE WESTERN NORTH PACIFIC: GROUND-BASED MEAS  
*Period Obligations*  
02/22/1991-02/28/1994 FY93: \$187,000 TOTAL: \$438,333  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J M PROSPERO LARC/J W DREWRY 31-Atmos Sci  
D L SAUOIE ....J M HOELL JR

**NAGW 1777 University of Miami 3427**  
APPLICATION OF VISUAL PRESENTATION TO ANALYSIS AND INTEGRATION  
*Period Obligations*  
09/14/1989-04/30/1993 FY93: \$0 TOTAL: \$1,099,479  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R H EVANS HQ/M R LEWIS 29-Math/Computer, NEC

**NAG 5-1788 University of Miami 3421**  
EOS VERSION ZERO DAAC VERIFICATION  
*Period Obligations*  
10/18/1991-10/31/1993 FY93: \$74,725 TOTAL: \$142,725  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R H EVANS GSFC/H K RAMAPRIYAN 39-Env Sci, NEC

**NAGW 1845 University of Miami 3428**  
MARINE PHYTOPLANKTON PRODUCTIVITY  
*Period Obligations*  
11/22/1989-12/31/1992 FY93: \$0 TOTAL: \$309,211  
*Prin. Invest. NASA Tech. Officer CASE Category*  
P A MATRAL HQ/M R LEWIS 33-Oceanography  
....W S WILSON

**NAG 5-1945 University of Miami 3422**  
INTEGRATION OF SLR AND VLBI DATA TO OBTAIN VERY ACCURATE HORIZONTAL AND VERTICAL MOTIONS  
*Period Obligations*  
03/12/1992-03/14/1994 FY93: \$53,000 TOTAL: \$103,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
C HARRISON GSFC/B G BILLS 32-Geological Sci

**NAGW 2073 University of Miami 3429**  
AIR SEA GAS EXCHANGE FROM SATELLITE PLATFORM  
*Period Obligations*  
06/06/1990-09/30/1992 FY93: \$0 TOTAL: \$331,174  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R A FINE HQ/M LEWIS 33-Oceanography  
D B OLSON

**NASA'S UNIVERSITY PROGRAM  
FLORIDA (Continued)**

**NAGW 2330 University of Miami 3430**  
REMOTE EARTH SCIENCES DATA COLLECTION USING THE AC  
TS/TWELVE (12) MONTH EXTENSION  
*Period Obligations*  
09/23/1992-09/15/1992 FY93: \$0 TOTAL: \$69,283  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R EVANS HQ/D A OLMSTEAD 42-Astro Engr  
O BROWN  
M R LEWIS

**NAGW 2426 University of Miami 3431**  
EVALUATION OF PHYSIOLOGICALLY-BASED ALGORITHMS FOR THE  
REMOTE SENSING OF OCEAN PRIMARY PRODUCTIVITY  
*Period Obligations*  
04/16/1991-03/31/1994 FY93: \$110,000 TOTAL: \$322,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
W M BALCH HQ/M R LEWIS 33-Oceanography  
....D E WICKLAND

**NAGW 2672 University of Miami 3432**  
EFFECT OF THE DIRECTIONAL WAVE SPECTRUM ON THE RET  
RIEVAL OF MARINE SURFACE WINDS FROM RADAR BACK  
*Period Obligations*  
08/30/1991-10/31/1993 FY93: \$80,914 TOTAL: \$135,142  
*Prin. Invest. NASA Tech. Officer CASE Category*  
H C GRABER HQ/W C PATZERT 51-Biological Sci  
....J S THEON

**NAGW 2710 University of Miami 3433**  
STRATIGRAPHY AND TECTONICS OF SW MEXICO AN INTEGRA TED  
APPROACH  
*Period Obligations*  
09/05/1991-04/30/1992 FY93: \$0 TOTAL: \$25,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
C HARRISON HQ/M BALTUCK 32-Geological Sci  
....B J MALCOLM

**NAGW 3316 University of Miami 3434**  
APPLICATION OF HIGH RESOLUTION TOPOGRAPHIC AND REM OTE  
SENSING DATA TO THE KINEMATICS OF FOLD-AND  
*Period Obligations*  
12/31/1992-12/31/1993 FY93: \$45,939 TOTAL: \$45,939  
*Prin. Invest. NASA Tech. Officer CASE Category*  
T DIXON HQ/M BALTUCK 32-Geological Sci

**NAGW 3619 University of Miami 3435**  
AIR-SEA GAS FLUXES: A REMOTE SENSING/MODEL BASED  
APPROACH  
*Period Obligations*  
06/15/1993-05/31/1994 FY93: \$81,630 TOTAL: \$81,630  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D OLSEN HQ/R E MURPHY 33-Oceanography

**NAS 5-30557 University of Miami 3436**  
INFRARED ALGORITHM DEVELOPMENT FOR OCEAN  
OBSERVATIONS  
*Period Obligations*  
07/24/1989-12/14/1991 FY93: \$3,760 TOTAL: \$236,240  
*Prin. Invest. NASA Tech. Officer CASE Category*  
O B BROWN GSFC/G SOFFEN 33-Oceanography

**NAS 5-30694 University of Miami 3437**  
MAINTENANCE AND OPERATION OF ATS-3 COMMUNICATION SYS  
TEM (CONTRACT TRANSFERRED TO LEWIS RES. CNTR)  
*Period Obligations*  
05/23/1989-09/24/1994 FY93: \$171,116 TOTAL: \$495,443  
*Prin. Invest. NASA Tech. Officer CASE Category*  
O BROWN GSFC/R WALES 49-Engr, NEC

**NAS 5-31361 University of Miami 3438**  
MODIS - INVESTIGATION  
*Period Obligations*  
01/15/1992-12/14/2001 FY93: \$350,000 TOTAL: \$505,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
O B BROWN GSFC/H OSEROFF 33-Oceanography

**NAS 5-31362 University of Miami 3439**  
EOS/MODIS INVESTIGATION ENTITLED: 'PROCESSING/  
CALIBRATION FOR OCEAN OBSERVATION WITH EOS/MODIS'  
*Period Obligations*  
12/13/1991-12/14/2001 FY93: \$635,000 TOTAL: \$935,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R EVANS GSFC/H OSEROFF 31-Atmos Sci

**NAS 5-31363 University of Miami 3440**  
MODERATE RESOLUTION IMAGING SPECTROMETER  
INVESTIGATION - OCEAN  
*Period Obligations*  
01/15/1992-12/14/2001 FY93: \$365,000 TOTAL: \$583,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
H GORDON GSFC/H OSEROFF 31-Atmos Sci

**NAS 5-31734 University of Miami 3441**  
R AND D ATOMOSPHERIC CORRECTIONAL ALGORITHMS  
*Period Obligations*  
11/22/1991-11/22/1994 FY93: \$125,000 TOTAL: \$210,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
H GORDAN GSFC/C MCLAIN 31-Atmos Sci

**NAS 5-31745 University of Miami 3442**  
RESEARCH ALGORITHMS AND DESIGN, DEVELOPMENT, AND  
VERIFICATION OF S/W FOR DATA SYSTEMS FOR SEAWIFS  
*Period Obligations*  
04/24/1992-04/21/1995 FY93: \$255,000 TOTAL: \$455,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R EVANS GSFC/G FELDMAN 33-Oceanography

**NCC 2-581 University of Miami 3443**  
COCKPIT AUTOMATION AND GROUP PROCESSES  
*Period Obligations*  
02/09/1989-12/31/1991 FY93: \$4,310 TOTAL: \$552,345  
*Prin. Invest. NASA Tech. Officer CASE Category*  
E L WIENER ARC/H C FOUSHEE 62-Social Aspects  
R E CURRY ....E A PALMER

**NGT 00-030-026 University of Miami 3444**  
NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
10/23/1990-02/28/1994 FY93: \$0 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
M C FORBES HQ/G ASRAR 33-Oceanography

**NASA'S UNIVERSITY PROGRAM  
FLORIDA (Continued)**

**NGT 00-030-114 University of Miami 3445**  
NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
10/30/1992-08/31/1994 FY93: \$44,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
S A YVON HQ/G ASRAR 33-Oceanography  
..../D M BUTLER

**NAGW 678 University of South Florida 3452**  
SIMULATION ANALYSES OF NONSTATIONARY CZCS SEIRES  
*Period Obligations*  
12/01/1984-11/30/1992 FY93: \$0 TOTAL: \$2,100,353  
*Prin. Invest. NASA Tech. Officer CASE Category*  
K L CARDER HQ/M R LEWIS 33-Oceanography  
J J WALSH ....W S WILSON  
O B BROWN

**NAG 1-1104 University of South Florida 3446**  
COMPARISON OF 2 MEGOHM HOLMIUM AND 10 MEGOHM CARBON OXYGEN 2 LIDAR FOR ATMOSPHERIC BACKSCATTER AND  
*Period Obligations*  
02/13/1990-05/15/1993 FY93: \$75,055 TOTAL: \$258,903  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D K KILLINGER LARC/N P BARNES 31-Atmos Sci  
K CHAN ....J A WILLIAMS-BYRD

**NAGW 3050 University of South Florida 3453**  
A PERMANENT MINORITY ENGINEERING PROGRAM FOR HILLS BOROUGH COUNTY  
*Period Obligations*  
04/14/1992-04/30/1994 FY93: \$48,789 TOTAL: \$95,891  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R E HERRING HQ/B WHITE 49-Engr, NEC

**NAG 1-1378 University of South Florida 3447**  
EFFICIENCY IN BUILDING RESPONSE SURFACES USING OD ACTIVE OLZORITHURS AND COMPUTER GENERATED DESIGN  
*Period Obligations*  
01/22/1992-01/21/1993 FY93: \$0 TOTAL: \$25,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
W C CARPENTER LARC/J F BARTHELEMY 29-Math/Cmputer,NEC

**NAGW 3459 University of South Florida 3454**  
SIMULATION ANALYSIS OF DISSOLVED AND PARTICULATE COMPONENTS  
*Period Obligations*  
03/31/1993-12/31/1993 FY93: \$200,000 TOTAL: \$200,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J L WALSH HQ/R E MURPHY 33-Oceanography  
..../D M BUTLER

**NAG 3-851 University of South Florida 3448**  
SOLAR DYNAMIC HEAT RECEIVER PROGRAM DVLPMT AND DESIG OPTIMIZATION  
*Period Obligations*  
01/19/1988-11/30/1993 FY93: \$0 TOTAL: \$283,137  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R A CRANE LERC/M O DUSTIN 46-Mech Engr  
..../L L KOHOUT

**NAGW 3483 University of South Florida 3455**  
EVALUATION OF REGIONAL AND TEMPORAL VARIATION OF PRIMARY PRODUCTIVITY IN CASE II OCEAN SHELF WATERS  
*Period Obligations*  
05/06/1993-12/31/1993 FY93: \$175,000 TOTAL: \$175,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
F MULLER-KARGER HQ/D E WICKLAND 33-Oceanography  
..../A C JANETOS

**NAG 3-1112 University of South Florida 3449**  
NUMERICAL SIMULATION OF CHEMICAL KENETICS AND TURBULENT EDDIES FOR FLOW IN COMBUSTOR  
*Period Obligations*  
01/10/1990-01/08/1994 FY93: \$29,989 TOTAL: \$141,273  
*Prin. Invest. NASA Tech. Officer CASE Category*  
S J BEN YING LERC/H L NGUYEN 43-Chem Engr

**NAGW 3618 University of South Florida 3456**  
INCORPORATION OF SEAWIFS DATA INTO COUPLED PHYSICAL/BIOLOGICAL MODELS OF THE ARABIAN SEA  
*Period Obligations*  
06/09/1993-03/31/1994 FY93: \$147,503 TOTAL: \$147,503  
*Prin. Invest. NASA Tech. Officer CASE Category*  
M E LUTHER HQ/R E MURPHY 33-Oceanography  
..../D M BUTLER

**NAG 9-648 University of South Florida 3450**  
EVALUATION OF OVARIAN TUMOR CELL GROWTH AND GENE EXPRESSION  
*Period Obligations*  
10/28/1992-12/01/1993 FY93: \$115,000 TOTAL: \$115,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J L BECKER JSC/G SPAULDING 51-Biological Sci

**NAG10-68 University of South Florida 3457**  
ENHANCING MAGNETIC RESONANCE IMAGES FOR IMPROVED CANCER DIAGNOSIS  
*Period Obligations*  
03/21/1990-03/25/1993 FY93: \$0 TOTAL: \$129,115  
*Prin. Invest. NASA Tech. Officer CASE Category*  
L T CLARK KSC/R BUTTERFIELD 56-Medical Sciences

**NAGW 465 University of South Florida 3451**  
DEV.OF IN SITE TO COMPLEMENT OCEAN COLOR REMOTE SENSING  
*Period Obligations*  
05/05/1983-12/31/1993 FY93: \$147,000 TOTAL: \$1,426,188  
*Prin. Invest. NASA Tech. Officer CASE Category*  
K L CARDER HQ/M R LEWIS 33-Oceanography  
..../W S WILSON

**NAG10-76 University of South Florida 3458**  
DEVELOPMENT OF A LOAD MANAGEMENT THERMAN ENERGY STORAGE DEVICE  
*Period Obligations*  
07/16/1990-07/15/1993 FY93: \$0 TOTAL: \$120,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R A CRANE KSC/J K O MALLEY 99-Multi-Discip

**NASA'S UNIVERSITY PROGRAM  
FLORIDA (Continued)**

**NAS 1-19508 University of South Florida 3459**  
DEVELOPMENT OF HIGH OPTICAL QUALITY, HIGH TEMP. SAPPHIRE FIBERS  
*Period* *Obligations*  
11/21/1991-12/21/1993 FY93: \$0 TOTAL: \$99,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R S CHANG LARC/A J ZUCKERWAR 13-Physics  
N DJEU

**NAS 3-26412 University of South Florida 3460**  
ACTS PROPAGATION EXPERIMENTS  
*Period* *Obligations*  
05/03/1993-08/01/1995 FY93: \$125,002 TOTAL: \$125,002  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R E HENNING LERC/G J GUNDERMAN 19-Phys Sci, NEC

**NAS 5-30779 University of South Florida 3461**  
INVESTIGATION HIGH SPECTRAL RESOLUTION MODIS-T ALGORITHMS  
*Period* *Obligations*  
04/03/1990-01/14/1992 FY93: \$0 TOTAL: \$207,059  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
K L CARDER GSFC/H OSEROFF 31-Atmos Sci

**NAS 5-31716 University of South Florida 3462**  
EARTH OBSERVING SYSTEM MODIS/HIRIS TEAM MEMBER INVESTIGATION  
*Period* *Obligations*  
01/15/1992-12/14/2001 FY93: \$420,237 TOTAL: \$698,168  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
K R CARDER GSFC/H OSEROFF 31-Atmos Sci

**NCC 5-50 University of South Florida 3463**  
DEVELOPMENT AND VALIDATION OF ACHLOROPHYLL A, SEAW IFS ALGORITHM FOR CASE II WATERS  
*Period* *Obligations*  
09/02/1992-12/14/1993 FY93: \$74,999 TOTAL: \$74,999  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
K L CARDER GSFC/C R MCCLAIN 33-Oceanography  
....S B HOOKER

**NGT 00-050-979 University of South Florida 3464**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period* *Obligations*  
08/14/1992-06/30/1994 FY93: \$22,000 TOTAL: \$44,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
D K KILLINGER LARC/E PRIOR 13-Physics

**NGT 00-070-260 University of South Florida 3465**  
NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED MINORITY FOCUS PROGRAM  
*Period* *Obligations*  
06/21/1992-07/31/1994 FY93: \$22,000 TOTAL: \$44,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
F M KARGER SSC/A JOYCE 33-Oceanography

**NGT 00-090-048 University of South Florida 3466**  
UNDERGRADUATE STUDENT RESEARCHERS PROGRAM (UMF)  
*Period* *Obligations*  
08/22/1991-08/31/1994 FY93: \$26,913 TOTAL: \$70,484  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J O'SHIELDS HQ/B WHITE 49-Engr, NEC  
K BOWYER

**NGT 00-090-060 University of South Florida 3467**  
PILOT BRIDGE PROGRAM FOR MINORITY ENGINEERING STUDENTS  
*Period* *Obligations*  
04/21/1992-03/31/1994 FY93: \$34,038 TOTAL: \$55,972  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J A O'SHIELDS HQ/B L WHITE 49-Engr, NEC

**NGT 00-090-103 University of South Florida 3468**  
GRSP/UMF  
*Period* *Obligations*  
09/16/1992-08/14/1994 FY93: \$12,000 TOTAL: \$24,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J O'SHIELDS HQ/D K RUSSELL 99-Multi-Discip

**GEORGIA**

**NAG 1-410 Clark Atlanta University 3469**  
CONSTRUCT FINITE DIFFERENCE SCHEMES HAVING SPACIAL PROPERTIES FOR DIFFERENTIAL EQUATIONS  
*Period* *Obligations*  
09/19/1983-09/30/1993 FY93: \$0 TOTAL: \$897,324  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R E MICKENS LARC/J N SHOOSMITH 21-Mathematics

**NAG 3-1080 Clark Atlanta University 3470**  
METAL CONTAINING POLYMERS: ELECTROCATALYSIS  
*Period* *Obligations*  
01/22/1990-12/31/1993 FY93: \$0 TOTAL: \$149,584  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J L REED LERC/P R PROKOPIUS 12-Chemistry

**NAG 3-1394 Clark Atlanta University 3471**  
SUPERCONDUCTING MATERIALS PROCESSING  
*Period* *Obligations*  
12/04/1992-12/31/1993 FY93: \$345,444 TOTAL: \$345,444  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
T MENSAH LERC/S STECURA 19-Phys Sci, NEC

**NAG 3-1411 Clark Atlanta University 3472**  
THE CONSTRUCTION OF FINITE DIFFERENCE SCHEMES HAVI NG SPECIAL PROPERTIES  
*Period* *Obligations*  
12/31/1992-05/31/1994 FY93: \$163,864 TOTAL: \$163,864  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R E MICKENS LERC/J W GOODRICH 21-Mathematics

# NASA'S UNIVERSITY PROGRAM

## GEORGIA (Continued)

**NAGW 2939 Clark Atlanta University 3473**  
HIGH-PERFORMANCE POLYMERS AND CERAMICS  
*Period Obligations*  
03/13/1992-12/31/1993 FY93: \$2,000,000 TOTAL: \$2,694,873  
*Prin. Invest. NASA Tech. Officer CASE Category*  
E A MINTZ HQ/M S MARGOLIS 99-Multi-Discip

**NCC 3-286 Clark Atlanta University 3474**  
ALKALI-LAYERED COMPOUNDS, INTERFACES FOR ENERGY CONVERSION AND ENERGY STORAGE  
*Period Obligations*  
01/11/1993-11/30/1993 FY93: \$167,266 TOTAL: \$167,266  
*Prin. Invest. NASA Tech. Officer CASE Category*  
C R HANDY LERC/A F HEPP 13-Physics  
H L NEAL  
C  
PAPAGEORGOPOULOS

**NAG 2-828 Emory University 3475**  
HETEROGENEOUS DISTRIBUTED COMPUTING FOR COMPUTATIONAL AEROSCIENCES  
*Period Obligations*  
03/26/1993-03/31/1994 FY93: \$63,477 TOTAL: \$63,477  
*Prin. Invest. NASA Tech. Officer CASE Category*  
V S SUNDERAM ARC/T A LASINSKI 22-Computer Science  
...../E BARSZCZ

**NAS 2-10527 Emory University 3476**  
CARDIOVASCULAR ADAPTATION OF WHITE RATS TO DECREASED GRAVITY OF SPACE SHUTTLE/SPACELAB INFLIGHT CONDITION  
*Period Obligations*  
01/17/1986-11/30/1994 FY93: \$0 TOTAL: \$1,843,282  
*Prin. Invest. NASA Tech. Officer CASE Category*  
V POPOVIC ARC/G K SCHMIDT 51-Biological Sci

**NAG 1-623 Georgia Institute of Technology 3477**  
HIGH SPEED PRECISION MOTION STRATEGIES FOR LIGHTWEIGHT STRUCTURES  
*Period Obligations*  
11/15/1985-12/31/1992 FY93: \$0 TOTAL: \$268,872  
*Prin. Invest. NASA Tech. Officer CASE Category*  
W J BOOK LARC/D SOLOWAY 46-Mech Engr

**NAG 1-637 Georgia Institute of Technology 3478**  
ANALYSIS OF DELAMINATION RELATED FRACTURE PROCESSES IN COMPOSITES  
*Period Obligations*  
02/18/1986-12/25/1992 FY93: \$0 TOTAL: \$345,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
L W REHFELD LARC/T K O'BRIEN 47-Materials Engr  
E A ARMANIOS ...../G B MURRI

**NAG 1-939 Georgia Institute of Technology 3479**  
OPTIMAL GUIDANCE LAW DEVELOPMENT FOR AN ADVANCED LAUNCH SYSTEM  
*Period Obligations*  
12/01/1988-03/31/1992 FY93: \$1 TOTAL: \$346,292  
*Prin. Invest. NASA Tech. Officer CASE Category*  
A J CAZISE LARC/W T SUIT 41-Aero Engr  
D H HODGES ...../D D MOERDER

**NAG 1-1007 Georgia Institute of Technology 3480**  
BASIC RESEARCH ON DESIGN ANALYSIS METHODS FOR ROTORCRAFT VIBRATIONS  
*Period Obligations*  
07/03/1989-09/30/1992 FY93: \$0 TOTAL: \$109,646  
*Prin. Invest. NASA Tech. Officer CASE Category*  
S HANAGUD LARC/R G KVATERNIK 41-Aero Engr  
J I CRAIG

**NAG 1-1027 Georgia Institute of Technology 3481**  
PERIODIC TRIM SOLUTIONS WITH HP-VERSION FINITE ELEMENTS IN TIME  
*Period Obligations*  
06/23/1989-12/31/1991 FY93: \$370 TOTAL: \$100,177  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D A PETERS LARC/R G KVATERNIK 41-Aero Engr

**NAG 1-1094 Georgia Institute of Technology 3482**  
MODELING OF COMPOSITE BEAMS AND PLATES FOR STATIC AND DYNAMIC ANALYSIS  
*Period Obligations*  
01/18/1990-03/16/1993 FY93: \$1 TOTAL: \$189,072  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D H HODGES LARC/H E HINNANT 41-Aero Engr

**NAG 1-1139 Georgia Institute of Technology 3483**  
ANALYTICAL GUIDANCE LAW DEVELOPMENT FOR AEROCAPTURE AT MARS.  
*Period Obligations*  
05/04/1990-04/30/1993 FY93: \$0 TOTAL: \$203,880  
*Prin. Invest. NASA Tech. Officer CASE Category*  
A J CALISE LERC/W T SUIT 41-Aero Engr  
...../D D MOERDER

**NAG 1-1205 Georgia Institute of Technology 3484**  
STUDY OF DYNAMIC INTERACTIONS BETWEEN HYPERSONIC VEHICLE AERODYNAMICS AND PROPULSION SYSTEM PERFORMANCE  
*Period Obligations*  
01/07/1991-04/02/1992 FY93: \$1 TOTAL: \$68,921  
*Prin. Invest. NASA Tech. Officer CASE Category*  
G A FLANDRO LARC/J D SHAUGHNESSY 41-Aero Engr  
J E CORBAN ...../J D MCINN  
R L ROACH

**NAG 1-1213 Georgia Institute of Technology 3485**  
AIRBORNE MEASUREMENTS OF NO, NO2 AND NOY AS RELATED TO NASA'S PACIFIC EXPLORATORY MISSION  
*Period Obligations*  
02/19/1991-12/31/1995 FY93: \$529,002 TOTAL: \$972,716  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J D BRADSHAW LARC/E V BROWELL 31-Atmos Sci  
S T SANDHOLM ...../A F CARTER

**NAG 1-1217 Georgia Institute of Technology 3486**  
DEVELOPMENT OF ITERATIVE TECHNIQUES FOR SOLUTION OF UNSTEADY COMPRESSIBLE VISCOUS FLOWS  
*Period Obligations*  
02/15/1991-05/20/1993 FY93: \$15,926 TOTAL: \$74,949  
*Prin. Invest. NASA Tech. Officer CASE Category*  
L N SANKAR LARC/J B MALONE 41-Aero Engr  
...../J T BATINA

**NASA'S UNIVERSITY PROGRAM**  
**GEORGIA (Continued)**

**NAG 1-1243 Georgia Institute of Technology 3487**  
 ROBUST CLOSED-FORM OPTIMAL GUIDANCE LAW FOR AERO-  
 ASSISTED ORBIT TRANSFER  
*Period Obligations*  
 03/27/1991-03/31/1992 FY93: \$182 TOTAL: \$34,818  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 P K MENON LARC/D D MOERDER 42-Astro Engr  
 ....W T SUIT

**NAG 1-1451 Georgia Institute of Technology 3494**  
 RESEARCH IN ROBUST CONTROL FOR HYPERSONIC VEHICLE NLPN  
 92-440R  
*Period Obligations*  
 08/28/1992-08/27/1993 FY93: \$20,082 TOTAL: \$41,229  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A J CALISE LARC/J D MCMINN 41-Aero Engr  
 ....I M GREGORY

**NAG 1-1257 Georgia Institute of Technology 3488**  
 GUIDANCE AND FLIGHT CONTROL LAW DEVELOPMENT FOR HY  
 PERSONIC VEHICLES.  
*Period Obligations*  
 04/05/1991-01/31/1994 FY93: \$38,716 TOTAL: \$154,212  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A J CALISE LARC/D D MOERDER 42-Astro Engr  
 ....W T SUIT

**NAG 1-1517 Georgia Institute of Technology 3495**  
 CONTINUED DEVELOPMENT AND APPLICATION OF CIRCULAT  
 ION CONTROL TECHNOLOGY FOR ADVANCED SUBSONIC  
*Period Obligations*  
 06/14/1993-06/13/1994 FY93: \$49,979 TOTAL: \$49,979  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R J ENGLAR LARC/E G WAGGONER 41-Aero Engr  
 ....Z T APPLIN

**NAG 1-1319 Georgia Institute of Technology 3489**  
 COMPUTATION MECHANICS OF COMPOSITE STRUCTURES  
 INCREMENTAL FUNDING THROUGH DECEMBER 31, 1991  
*Period Obligations*  
 07/23/1991-07/31/1994 FY93: \$44,996 TOTAL: \$114,950  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S N ATLURI LARC/J T WANG 46-Mech Engr  
 ....J M HOUSNER

**NAG 2-622 Georgia Institute of Technology 3496**  
 INVESTIGATION AND EVALUATION OF TRANSONIC/SUPERSONIC  
 AIRFOIL DESIGN  
*Period Obligations*  
 02/26/1990-04/14/1992 FY93: \$0 TOTAL: \$324,879  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R J ENGLAR ARC/R M HICKS 41-Aero Engr  
 K P BURDGES ....S E CLIFF

**NAG 1-1397 Georgia Institute of Technology 3490**  
 ROBUST STABILITY OF SECOND-ORDER SYSTEMS  
*Period Obligations*  
 02/27/1992-02/23/1994 FY93: \$49,000 TOTAL: \$96,298  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 C H CHUANG LARC/J JUANG 42-Astro Engr  
 ....L G HORTA

**NAG 2-656 Georgia Institute of Technology 3497**  
 ACQUISITION AND PRODUCTION OF SKILLED BEHAVIOR IN D  
 YNAMIC DECISION-MAKING TASKS  
*Period Obligations*  
 08/03/1990-07/31/1993 FY93: \$0 TOTAL: \$233,935  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A KIRLIK ARC/R J SHIVELY 69-Psych, NEC

**NAG 1-1415 Georgia Institute of Technology 3491**  
 AIRBORNE MEASUREMENTS OF NO,NO2,NOY AS RELATED TO  
 NASA'S TRACE-A FIELD PROGRAM  
*Period Obligations*  
 04/03/1992-10/31/1994 FY93: \$188,580 TOTAL: \$376,580  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J BRADSHAW LARC/E V BROWELL 31-Atmos Sci  
 S SANDHOLT ....A F CARTER

**NAG 2-700 Georgia Institute of Technology 3498**  
 SEARCH FOR EXTRATERRESTRIAL INTELLIGENCE/MICROWAVE  
 OBSERVING PROJECT: SKY SURVEY TEAM MEMBER  
*Period Obligations*  
 03/20/1991-10/31/1993 FY93: \$48,230 TOTAL: \$174,051  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 P G STEFFES ARC/D H BROCKER 11-Astronomy

**NAG 1-1435 Georgia Institute of Technology 3492**  
 DEVELOPMENT OF AN HP-VERSION FINITE ELEMENT METHOD FOR  
 COMPUTATIONAL OPTIMAL CONTROL, NLPN 92-241  
*Period Obligations*  
 04/22/1992-11/30/1993 FY93: \$38,003 TOTAL: \$65,401  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D H HODGES LARC/D D MOERDER 42-Astro Engr  
 ....W T SUIT

**NAG 2-806 Georgia Institute of Technology 3499**  
 DESIGN AND TECHNICAL SUPPORT OF DEVELOPMENT OF MOLDE  
 D FABRIC SPACE SUIT JOINT  
*Period Obligations*  
 10/07/1992-09/30/1993 FY93: \$79,287 TOTAL: \$79,287  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 L H OLSON ARC/H C VYKUKAL 49-Engr, NEC

**NAG 1-1438 Georgia Institute of Technology 3493**  
 DIAGNOSTIC MODELLING STUDIES OF THE HX OY-NX OY-03  
 PHOTOCHEMICAL SYSTEM AND ITS COUPLING TO SULFUR  
*Period Obligations*  
 05/18/1992-05/17/1994 FY93: \$115,811 TOTAL: \$252,409  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D D DAVIS LARC/J FISHMAN 31-Atmos Sci  
 W L CHAMEIDES ....J M HOELL

**NAG 2-869 Georgia Institute of Technology 3500**  
 COMPUTATIONAL STRATEGIES FOR 3-D FLOW SIMULATIONS ON  
 DISTRIBUTED SYSTEMS  
*Period Obligations*  
 08/12/1993-08/14/1994 FY93: \$37,779 TOTAL: \$37,779  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 L N SANKAR ARC/T L HOST 41-Aero Engr



**NASA'S UNIVERSITY PROGRAM**  
**GEORGIA (Continued)**

**NAG 3-768 Georgia Institute of Technology 3501**  
 STUDIES OF UNSTEADY VISCOUS FLOWS USING A TWO-EQUATION  
 MODEL OF TURBULENCE  
*Period Obligations*  
 12/18/1986-12/31/1993 FY93: \$41,477 TOTAL: \$241,047  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 L N SANKAR LERC/M G POTAPCZUK 49-Engr, NEC  
 J C WU

**NAG 3-895 Georgia Institute of Technology 3502**  
 PARALLEL PROCESSING FOR THE ANA OF TURBO MACH  
 BLADED-DISK ASSEMBLIES  
*Period Obligations*  
 04/08/1988-06/17/1992 FY93: \$16 TOTAL: \$110,091  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M KAMAT LERC/D C JANETZKE 41-Aero Engr

**NAG 3-974 Georgia Institute of Technology 3503**  
 ACTIVELY CONTROLLED SHAFT SEALS FOR AEROSPACE APPL  
 ICATIONS  
*Period Obligations*  
 01/05/1989-12/31/1993 FY93: \$51,000 TOTAL: \$294,443  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R F SALANT LERC/M P PROCTOR 49-Engr, NEC

**NAG 3-1066 Georgia Institute of Technology 3504**  
 NOVEL JET NOISE REDUCTION CONCEPTS  
*Period Obligations*  
 08/14/1989-04/02/1994 FY93: \$230,000 TOTAL: \$619,936  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 K K AHUJA LERC/E KREJSA 41-Aero Engr  
 ....J F GROENEWEG

**NAG 3-1215 Georgia Institute of Technology 3505**  
 LV SOFTWARE SUPPORT FOR SUPERSONIC FLOW ANALYSIS  
*Period Obligations*  
 10/31/1990-10/14/1992 FY93: \$0 TOTAL: \$97,163  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 W A BELL LERC/R D MOORE 41-Aero Engr

**NAG 3-1221 Georgia Institute of Technology 3506**  
 STABILITY AND INSTABILITY OF THERMOCAPILLARY CONVECT ION  
 IN MODELS OF THE FLOAT-ZONE CRYSTAL-GROWTH CO  
*Period Obligations*  
 11/29/1990-10/31/1992 FY93: \$13,000 TOTAL: \$254,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 G P NEITZEL LERC/R W VERNON 46-Mech Engr

**NAG 3-1239 Georgia Institute of Technology 3507**  
 REVIEW OF THE TECHNOLOGY AND APPLICATION OF 4BA01CA0  
 1A1203 IMPREGNATED CATHODES IN ION ENGINES / 5330  
*Period Obligations*  
 01/24/1991-05/09/1994 FY93: \$35,614 TOTAL: \$96,079  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 W OHLINGER LERC/G MACRAE 47-Materials Engr

**NAG 3-1454 Georgia Institute of Technology 3508**  
 CONTROL OF OSCILLATORY THERMOCAPILLARY CONVECTION IN  
 MICROGRAVITY  
*Period Obligations*  
 02/17/1993-02/08/1994 FY93: \$150,000 TOTAL: \$150,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 G P NEITZEL LERC/R L THOMPSON 46-Mech Engr

**NAG 5-1044 Georgia Institute of Technology 3509**  
 HUMAN COMPUTER INTERACTION IN DISTRIBUTED SUPERVISORY  
 CONTROL/CONTROL TASKS  
*Period Obligations*  
 04/15/1988-05/14/1994 FY93: \$45,000 TOTAL: \$481,173  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 C M MITCHELL GSFC/W F TRUSZKOWSKI  
 22-Computer Science

**NAG 5-1490 Georgia Institute of Technology 3510**  
 INVESTIGATION OF PASSIVE ATMOSPHERIC SOUNDING USIN G  
 MILLIMETER AND SUBMILLIMETER-WAVELENGTH CHANNEL  
*Period Obligations*  
 12/10/1990-12/31/1994 FY93: \$109,990 TOTAL: \$259,963  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A J GASIEWSKI GSFC/R F ADLER 31-Atmos Sci

**NAG 5-2187 Georgia Institute of Technology 3511**  
 NEXT GENERATION METHODS FOR IMAGE DATA COMPRESSION  
*Period Obligations*  
 02/04/1993-02/14/1994 FY93: \$74,206 TOTAL: \$74,206  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M J SMITH GSFC/P S YEH 45-Elec Engr

**NAG 5-2226 Georgia Institute of Technology 3512**  
 ADVANCED USER INTERFACES AND INTELLIGENT SYSTEMS F OR  
 DESIGN, OPERATION, AND MAINTENANCE OF . . . .  
*Period Obligations*  
 03/23/1993-03/31/1994 FY93: \$145,000 TOTAL: \$145,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 C M MITCHELL GSFC/W J POTTER 22-Computer Science  
 ....A T JOHNS

**NAG 5-2227 Georgia Institute of Technology 3513**  
 INTELLIGENT COMMAND AND CONTROL SYSTEMS FOR SATELL  
 ITE GROUND OPERATIONS  
*Period Obligations*  
 03/12/1993-03/31/1994 FY93: \$74,234 TOTAL: \$74,234  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 C M MITCHELL GSFC/A W STOFFEL 22-Computer Science

**NAG 8-194 Georgia Institute of Technology 3514**  
 THE MERCATOR PROJECT-A NON-VISUAL USER INTERFACE FOR  
 COMPUTER WORKSTATION  
*Period Obligations*  
 05/01/1991-04/15/1994 FY93: \$82,403 TOTAL: \$121,423  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 W PUTNAM MSFC/G R HIGGINS 29-Math/Cmputer, NEC  
 J GOLDTHWAITE  
 E MYNATT

**NASA'S UNIVERSITY PROGRAM**  
**GEORGIA (Continued)**

**NAG 8-243 Georgia Institute of Technology 3515**  
 ELASTIC PLASTIC FRACTURE MECHANICS METHODOLOGY FOR  
 SURFACE CRACKS  
*Period Obligations*  
 08/17/1992-08/16/1993 FY93: \$49,531 TOTAL: \$59,531  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 H A ERNST MSFC/C D WILSON 47-Materials Engr  
 ....R STALLWORTH

**NAG 8-713 Georgia Institute of Technology 3516**  
 GRANT ENTITLED 'DYNAMIC CRYSTALLIZATION CONTROL  
 HARDWARE.'  
*Period Obligations*  
 03/21/1988-12/31/1991 FY93: \$3,133 TOTAL: \$191,257  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 F L SUDDATH MSFC/R S SNYDER 12-Chemistry

**NAG 8-847 Georgia Institute of Technology 3517**  
 MEASUREMENTS OF AEROSOL PROPERTIES NEEDED TO  
 INFERBACKSCATTERCHARACTERISTICS  
*Period Obligations*  
 09/10/1990-10/31/1991 FY93: \$38 TOTAL: \$79,940  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 E M PATTERSON MSFC/J ROTHERMEL 31-Atmos Sci

**NAG 8-869 Georgia Institute of Technology 3518**  
 FIBER OPTIC HIGH-TEMPERATURE STRAIN SENSOR DEVELOP  
 MENT  
*Period Obligations*  
 04/16/1991-05/31/1992 FY93: \$0 TOTAL: \$159,962  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 E O RAUSCH MSFC/S K NASH-STEVENSON 13-Physics  
 K K AHUJA ....J E ZIMMERMAN

**NAG 8-877 Georgia Institute of Technology 3519**  
 ADDITIONS TO THE MARS GLOBAL REFERENCE ATMOSPHERIC  
*Period Obligations*  
 04/18/1991-04/28/1992 FY93: \$1 TOTAL: \$29,999  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 C G JUSTUS MSFC/B F JAMES 31-Atmos Sci  
 ....D L JOHNSON

**NAG 8-921 Georgia Institute of Technology 3520**  
 THEORY AND COMPUTATION OF OPTIMAL LOW-MEDIUM THRUST  
 ORBIT TRANSFERS  
*Period Obligations*  
 07/07/1992-07/06/1994 FY93: \$20,000 TOTAL: \$27,763  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 C H CHUENG MSFC/J M HANSON 42-Astro Engr  
 ....G A DUKEMAN

**NAG 9-422 Georgia Institute of Technology 3521**  
 COGNITIVE ENGINEERING MODELS IN SPACE SYSTEMS  
*Period Obligations*  
 06/11/1990-12/31/1993 FY93: \$0 TOTAL: \$10,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 C M MITCHELL JSC/M RUDISILL 29-Math/Computer,NEC

**NAGW 533 Georgia Institute of Technology 3522**  
 LAB EVAL OF MICROWAVE ALYOPTION TROPERTIES UNDER  
 SIMULATED CONDIT IONS FOR PLANETARY ATMOSPHERES  
*Period Obligations*  
 02/01/1984-10/31/1993 FY93: \$67,624 TOTAL: \$637,124  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 P G STEFFES HQ/J T BERGSTRALH 31-Atmos Sci  
 ....W L QUAIDE

**NAGW 1001 Georgia Institute of Technology 3523**  
 LAB INVESTIGATION OF STRATOSPHERIC BROMINE CHEM.  
*Period Obligations*  
 01/01/1987-12/31/1993 FY93: \$145,000 TOTAL: \$859,493  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 P H WINE HQ/M J KURYLO 31-Atmos Sci  
 J M NICOVICH ....R T WATSON  
 A J HYNES

**NAGW 2753 Georgia Institute of Technology 3524**  
 ACOUSTIC CHARGE TRANSPORT IMAGER FOR HIGH DEFINITION  
 TELEVISION APPLICATIONS: PROOF OF CONCEPT DEMO  
*Period Obligations*  
 09/27/1991-09/30/1993 FY93: \$2,309,825 TOTAL: \$3,134,703  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 W D HUNT HQ/T BENTSEN 29-Math/Computer,NEC

**NAGW 3117 Georgia Institute of Technology 3525**  
 ANCIENT SULFUR BIOGEOCHEMISTRY  
*Period Obligations*  
 06/29/1992-05/31/1994 FY93: \$81,527 TOTAL: \$156,925  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D E CANFIELD HQ/J D RUMMEL 54-Env Biology

**NAGW 3181 Georgia Institute of Technology 3526**  
 NAGW-3181/GEORGIA TECH RESEARCH CORPORATION/ SPECKLE  
 IMAGING OF YOUNG PLANETARY SYSTEMS  
*Period Obligations*  
 08/28/1992-06/30/1994 FY93: \$30,424 TOTAL: \$61,557  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J W BELETIC HQ/J A NUTH 19-Phys Sci, NEC

**NAS 1-14654 Georgia Institute of Technology 3527**  
 INVESTIGATION OF THE EFFECTS OF LONG DURATION EXPOSURE  
 ON ACTIVE OPTICAL SYSTEM COMPONENTS  
*Period Obligations*  
 10/14/1976-03/31/1994 FY93: \$59,942 TOTAL: \$699,463  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M D BLUE LARC/L G CLARK 45-Elec Engr  
 J J GALLAGHER ....J D BATTISTA  
 R G SHACKELFORD

**NAS 1-18487 Georgia Institute of Technology 3528**  
 ERBS/SAGE II SCIENTIFIC INVESTIGATION  
*Period Obligations*  
 04/15/1987-04/14/1993 FY93: \$0 TOTAL: \$370,304  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D M CUNNOLD LARC/G L MADDREA 31-Atmos Sci  
 ....L R MCMASTER

**NASA'S UNIVERSITY PROGRAM  
GEORGIA (Continued)**

**NAS 1-18938 Georgia Institute of Technology 3529**  
SAGE III EXPERIMENT SCIENTIFIC SUPPORT/CUNNOLD  
*Period Obligations*  
02/20/1990-02/31/1995 FY93: \$15,000 TOTAL: \$59,700  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D M CUNNOLD LARC/G L MADDREA 31-Atmos Sci  
....L R MCMASTER

**NAS 1-19061 Georgia Institute of Technology 3530**  
RESEARCH IN ACOUSTICS AND NOISE CONTROL  
*Period Obligations*  
02/02/1993-05/04/1996 FY93: \$1,088,253 TOTAL: \$2,895,868  
*Prin. Invest. NASA Tech. Officer CASE Category*  
K AHUJA LARC/L R CLARK 41-Aero Engr

**NAS 1-19954 Georgia Institute of Technology 3531**  
SAGE II SCIENTIFIC INVESTIGATION  
*Period Obligations*  
05/05/1993-05/04/1996 FY93: \$85,000 TOTAL: \$85,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D M CUNNOLD LARC/G L MADDREA 31-Atmos Sci  
....M D MCCORMICK

**NAS 5-27264 Georgia Institute of Technology 3532**  
PARTICIPATION IN UARS SCIENCE WORKING GROUP MEETINGS  
ON THEORETICAL INVESTIGATIONS  
*Period Obligations*  
07/01/1982-04/01/1994 FY93: \$225,000 TOTAL: \$1,323,961  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D CUNNOLD GSFC/C REBER 31-Atmos Sci

**NCA 2-512 Georgia Institute of Technology 3533**  
IMPACT OF ROTATING FRAME ON HELICOPTER FLIGHT DYNAMICS  
*Period Obligations*  
04/23/1990-11/30/1992 FY93: \$19,984 TOTAL: \$79,870  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J V PRASAD ARC/A ATENCIO 41-Aero Engr  
D P SCHRAGE ....R E MCFARLAND

**NCA 2-652 Georgia Institute of Technology 3534**  
SIZING AND PERFORMANCE ANALYSIS OF A TIP-JET DRIVEN HIGH  
SPEED ROTORCRAFT CONCEPT  
*Period Obligations*  
09/11/1991-11/30/1992 FY93: \$0 TOTAL: \$39,990  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D P SCHRAGE ARC/T GALLOWAY 46-Mech Engr  
D MAVRIS

**NCA 2-690 Georgia Institute of Technology 3535**  
STUDIES IN UNSTEADY AERODYNAMICS OF MULTI-ELEMENT  
AIRFOILS  
*Period Obligations*  
02/27/1992-01/31/1993 FY93: \$0 TOTAL: \$29,956  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J C WU ARC/C TUNG 41-Aero Engr  
C M WANG

**NCA 2-747 Georgia Institute of Technology 3536**  
STUDIES OF HIGH LIFT AIRFOIL WITH IMPROVING STALL  
CHARACTERISTICS  
*Period Obligations*  
08/25/1992-06/30/1994 FY93: \$39,972 TOTAL: \$70,559  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J C WU ARC/C TUNG 41-Aero Engr  
C M WANG

**NCA 2-761 Georgia Institute of Technology 3537**  
ROTORCRAFT TURBULENCE MODELING AND SIMULATION  
*Period Obligations*  
11/12/1992-08/31/1993 FY93: \$26,030 TOTAL: \$26,030  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J V PRASAD ARC/A ATENCIO 41-Aero Engr  
....R E MCFARLAND

**NCA 2-771 Georgia Institute of Technology 3538**  
A MULTIDISCIPLINARY DESIGN OPTIMIZATION METHOD APP LIED  
TO STOPPABLE CONFIGURATIONS  
*Period Obligations*  
02/01/1993-12/31/1993 FY93: \$39,990 TOTAL: \$39,990  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D P SCHRAGE ARC/T GALLOWAY 41-Aero Engr  
D MAVRIS

**NCC 1-148 Georgia Institute of Technology 3539**  
THE NASA GLOBAL TROPOSPHERIC EXPERIMENT; PACIFIC  
EXPLORATORY MISSION WEST (PEM WEST) MISSION SCIENT  
*Period Obligations*  
01/07/1991-04/30/1994 FY93: \$48,688 TOTAL: \$152,614  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D D DAVIS LARC/J M HOELL 31-Atmos Sci  
....R J BENDURA

**NCC 2-575 Georgia Institute of Technology 3540**  
OPTIMAL ROUTE PLANNING AND OBSTACLE AVOIDANCE FOR NAP  
OF THE EARTH HELICOPTER FLIGHT GUIDANCE  
*Period Obligations*  
01/25/1989-09/30/1991 FY93: \$1 TOTAL: \$273,445  
*Prin. Invest. NASA Tech. Officer CASE Category*  
P K MENON ARC/V H CHENG 41-Aero Engr

**NCC 2-675 Georgia Institute of Technology 3541**  
OPERATOR MODELING IN COMMERCIAL AVIATION: COGNITIVE  
MODELS, INTELLIGENT DISPLAYS, AND PILOT'S .....  
*Period Obligations*  
07/26/1990-06/30/1993 FY93: \$0 TOTAL: \$344,563  
*Prin. Invest. NASA Tech. Officer CASE Category*  
T GOVINDARAJ ARC/E A PALMER 49-Engr, NEC  
C M MITCHELL ....S L CHAPPELL

**NCC 2-824 Georgia Institute of Technology 3542**  
HUMAN-CENTERED DESIGN OF HUMAN-COMPUTER-HUMAN DIAL  
OGS IN AEROSPACE SYSTEMS  
*Period Obligations*  
09/07/1993-07/31/1994 FY93: \$101,479 TOTAL: \$101,479  
*Prin. Invest. NASA Tech. Officer CASE Category*  
C M MITCHELL ARC/E A PALMER 49-Engr, NEC  
....K CORKER

**NCC 3-116 Georgia Institute of Technology 3543**  
RAPIDLY SOLIDIFIED NBA. AND NIA. INTERMETALLICS  
*Period Obligations*  
10/18/1988-12/17/1992 FY93: \$0 TOTAL: \$262,612  
*Prin. Invest. NASA Tech. Officer CASE Category*  
S D ANTOLOVICH LERC/H R GRAY 47-Materials Engr  
R R BOWMAN ....M V NATHAL

**NASA'S UNIVERSITY PROGRAM**  
**GEORGIA (Continued)**

**NCC 3-135 Georgia Institute of Technology 3544**  
 FREQUENCY RESPONSE OF A THERMOCOUPLE: EFFECTS OF AXIAL CONDUCTION AND FLOW REVERSAL  

<i>Period</i>	<i>Obligations</i>	
03/31/1989-06/30/1992	FY93: \$30	TOTAL: \$148,470
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
L J FORNEY	ARC/G C FRALICK	46-Mech Engr

**NCC 3-302 Georgia Institute of Technology 3545**  
 FREQUENCY RESPONSE OF A THERMOCOUPLE: EFFECTS OF FLOW REVERSAL  

<i>Period</i>	<i>Obligations</i>	
03/24/1993-01/07/1994	FY93: \$30,000	TOTAL: \$30,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
L J FORNEY	LERC/G C FRALICK	46-Mech Engr

**NGT 00-030-050 Georgia Institute of Technology 3546**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  

<i>Period</i>	<i>Obligations</i>	
08/21/1991-08/31/1992	FY93: \$0	TOTAL: \$22,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
C J SHACKELFORD	HQ/D M BUTLER	31-Atmos Sci
P H WINE	..../G S WILSON	

**NGT 00-040-013 Georgia Institute of Technology 3547**  
 NATION SPACE GRANT AND FELLOWSHIP PROGRAM  

<i>Period</i>	<i>Obligations</i>	
09/29/1989-01/31/1994	FY93: \$323,000	TOTAL: \$1,318,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
D A PETERS	HQ/E T SCHWARTZ	99-Multi-Discip

**NGT 00-050-498 Georgia Institute of Technology 3548**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  

<i>Period</i>	<i>Obligations</i>	
08/17/1989-07/31/1992	FY93: \$0	TOTAL: \$62,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
R KANGARI	HQ/F C OWENS	22-Computer Science

**NGT 00-050-526 Georgia Institute of Technology 3549**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  

<i>Period</i>	<i>Obligations</i>	
09/06/1989-06/21/1992	FY93: \$0	TOTAL: \$61,200
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
G P RODRIQUE	HQ/F C OWENS	45-Elec Engr

**NGT 00-050-535 Georgia Institute of Technology 3550**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  

<i>Period</i>	<i>Obligations</i>	
09/20/1989-09/30/1992	FY93: \$0	TOTAL: \$62,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
M A HAYES	HQ/F C OWENS	13-Physics

**NGT 00-050-641 Georgia Institute of Technology 3551**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  

<i>Period</i>	<i>Obligations</i>	
08/06/1990-06/30/1994	FY93: \$22,000	TOTAL: \$88,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
H A EMST	HQ/F C OWENS	46-Mech Engr

**NGT 00-050-705 Georgia Institute of Technology 3552**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  

<i>Period</i>	<i>Obligations</i>	
06/13/1991-06/30/1994	FY93: \$22,000	TOTAL: \$66,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
J D MUZZY	HQ/F C OWENS	47-Materials Engr

**NGT 00-050-765 Georgia Institute of Technology 3553**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  

<i>Period</i>	<i>Obligations</i>	
06/10/1991-06/30/1994	FY93: \$20,952	TOTAL: \$60,448
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
W L CHAMEIDES	HQ/F C OWENS	11-Astronomy

**NGT 00-050-864 Georgia Institute of Technology 3554**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  

<i>Period</i>	<i>Obligations</i>	
11/08/1991-08/31/1993	FY93: \$0	TOTAL: \$44,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
R G ROPER	MSFC/F SIX	31-Atmos Sci

**NGT 00-050-903 Georgia Institute of Technology 3555**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  

<i>Period</i>	<i>Obligations</i>	
05/26/1992-09/30/1994	FY93: \$22,000	TOTAL: \$44,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
A J GASIEWSKI	HQ/J ALEXANDER	45-Elec Engr

**NGT 00-050-981 Georgia Institute of Technology 3556**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  

<i>Period</i>	<i>Obligations</i>	
08/20/1992-09/20/1993	FY93: \$0	TOTAL: \$18,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
M P KAMAT	LERC/F MONTAGANI	42-Astro Engr

**NGT 00-051-042 Georgia Institute of Technology 3557**  
 GRADUATE STUDENT RESEARCHERS PROGRAM  

<i>Period</i>	<i>Obligations</i>	
05/06/1993-06/30/1994	FY93: \$22,000	TOTAL: \$22,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
W T RHODES	MSFC/F SIX	45-Elec Engr

**NGT 00-051-101 Georgia Institute of Technology 3558**  
 GRADUATE STUDENT RESEARCHERS PROGRAM  

<i>Period</i>	<i>Obligations</i>	
05/25/1993-06/30/1994	FY93: \$22,000	TOTAL: \$22,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
D SCHRAGE	HQ/J T LYNCH	41-Aero Engr

**NGT 00-051-102 Georgia Institute of Technology 3559**  
 GRADUATE STUDENT RESEARCHERS PROGRAM  

<i>Period</i>	<i>Obligations</i>	
05/25/1993-06/30/1994	FY93: \$22,000	TOTAL: \$22,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
KEMPER	HQ/J T LYNCH	46-Mech Engr

**NASA'S UNIVERSITY PROGRAM**  
**GEORGIA (Continued)**

**NGT 00-051-112 Georgia Institute of Technology 3560**  
GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
06/22/1993-06/30/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
A SAXENA LARC/E PRIOR 47-Materials Engr

**NGT 00-051-115 Georgia Institute of Technology 3561**  
GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
07/23/1993-09/14/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
K A CUNEFARE HQ/F T LYNCH 46-Mech Engr

**NGT 00-051-154 Georgia Institute of Technology 3562**  
GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
08/04/1993-09/14/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
K SCHWAN HQ/D HOLLAND 22-Computer Science

**NGT 00-051-178 Georgia Institute of Technology 3563**  
GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
08/18/1993-09/14/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D L MCDOWELL LERC/F MONTEGANI 46-Mech Engr

**NGT 00-070-254 Georgia Institute of Technology 3564**  
NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
MINORITY FOCUS PROGRAM  
*Period Obligations*  
05/11/1992-06/30/1994 FY93: \$22,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
W J WEPFER HQ/D K RUSSELL 46-Mech Engr

**NGT 00-070-315 Georgia Institute of Technology 3565**  
NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
MINORITY FOCUS PROGRAM  
*Period Obligations*  
06/29/1993-06/30/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
H STALFORD HQ/D K RUSSELL 41-Aero Engr

**NGT 00-070-356 Georgia Institute of Technology 3566**  
NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
MINORITY FOCUS PROGRAM  
*Period Obligations*  
08/31/1993-08/31/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R GERHARDT HQ/D K RUSSELL 45-Elec Engr

**NGT 00-070-363 Georgia Institute of Technology 3567**  
NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
MINORITY FOCUS PROGRAM  
*Period Obligations*  
09/08/1993-08/31/1994 FY93: \$21,934 TOTAL: \$21,934  
*Prin. Invest. NASA Tech. Officer CASE Category*  
P GIRARD HQ/D K RUSSELL 51-Biological Sci

**NGT 00-090-080 Georgia Institute of Technology 3568**  
GSRP/UMF  
*Period Obligations*  
09/16/1992-08/14/1994 FY93: \$12,000 TOTAL: \$24,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
L R HOWARD HQ/D K RUSSELL 99-Multi-Discip

**NGT 00-090-081 Georgia Institute of Technology 3569**  
UNDERGRADUATE STUDENT RESEARCHERS PROGRAM (UMF)  
*Period Obligations*  
09/17/1992-08/14/1994 FY93: \$12,000 TOTAL: \$24,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
L R HOWARD HQ/D K RUSSELL 99-Multi-Discip

**NGT 00-090-082 Georgia Institute of Technology 3570**  
UNDERGRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
09/12/1992-08/14/1994 FY93: \$12,000 TOTAL: \$24,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
L R HOWARD HQ/D K RUSSELL 99-Multi-Discip

**NGT 00-090-167 Georgia Institute of Technology 3571**  
UNDERGRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
09/29/1993-08/14/1994 FY93: \$12,000 TOTAL: \$12,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
L HOWARD HQ/D K RUSSELL 99-Multi-Discip

**NGT 00-090-199 Georgia Institute of Technology 3572**  
UNDERGRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
08/27/1993-08/14/1994 FY93: \$12,000 TOTAL: \$12,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
L HOWARD HQ/D RUSSELL 99-Multi-Discip

**NGT 00-090-200 Georgia Institute of Technology 3573**  
UNDERGRADUATE STUDENT RESEARCHERS (UMF) PROGRAM  
*Period Obligations*  
08/25/1993-08/14/1994 FY93: \$12,000 TOTAL: \$12,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
L HOWARD HQ/D K RUSSELL 99-Multi-Discip

**NGT 00-090-201 Georgia Institute of Technology 3574**  
UNDERGRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
08/25/1993-08/14/1994 FY93: \$12,000 TOTAL: \$12,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
L HOWARD HQ/D RUSSELL 99-Multi-Discip

**NGT 00-090-202 Georgia Institute of Technology 3575**  
UNDERGRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
08/27/1993-08/14/1994 FY93: \$12,000 TOTAL: \$12,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
L HOWARD HQ/D K RUSSELL 99-Multi-Discip

**NASA'S UNIVERSITY PROGRAM**  
**GEORGIA (Continued)**

**NAG 3-1455 Georgia Southern College 3576**  
 THE BEHAVIOR OF UNSTEADY THERMOCAPILLARY FLOWS  
*Period Obligations*  
 02/08/1993-01/28/1994 FY93: \$70,000 TOTAL: \$70,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M K SMITH LERC/R L THOMPSON 46-Mech Engr

**NAG 5-496 Georgia Southern College 3577**  
 LABORATORY STUDIES OF SMALL CARBON GRANDULES  
*Period Obligations*  
 02/01/1985-03/31/1994 FY93: \$18,500 TOTAL: \$145,813  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R H NELSON GSFC/B DONN 12-Chemistry  
 ....J A NUTH

**NAG 8-271 Georgia Southwestern College 3578**  
 JOVE  
*Period Obligations*  
 12/30/1992-05/31/1994 FY93: \$55,000 TOTAL: \$55,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J P MANKER MSFC/F SIX 99-Multi-Discip  
 E D ELDER

**NAG 2-438 Georgia State University 3579**  
 SELECTION OF BEHAVIORAL TASKS AND DEVELOPMENT OF SWARE  
 FOR EVALUATION OF RHESUS MONKEY BEHAVIOR DURI  
*Period Obligations*  
 03/01/1987-02/28/1994 FY93: \$266,624 TOTAL: \$993,643  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D M RUMBAUGH ARC/P X CALLAHAN 51-Biological Sci  
 E S SAVAGE ....C M WINGET  
 W K RICHARDSON

**NAG 5-1994 Georgia State University 3580**  
 TOMOGRAPHY OF EARLY-TYPE CLOSE BINARY STARS  
*Period Obligations*  
 06/12/1992-06/14/1994 FY93: \$46,282 TOTAL: \$92,953  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 W BAGNUOLO GSFC/D WEST 11-Astronomy

**NAG 5-2148 Georgia State University 3581**  
 COLLIDING WINDS AND TOMOGRAPHY OF O-TYPE BINARIES  
*Period Obligations*  
 12/14/1992-12/14/1993 FY93: \$5,940 TOTAL: \$5,940  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 GIES GSFC/D WEST 11-Astronomy

**NAG 9-564 Mercer University Central Office 3582**  
 OPERATIONAL AMPLIFIER FAILURES UNDER SIMULATED  
 ELECTRICAL FAULTS  
*Period Obligations*  
 09/27/1991-09/30/1992 FY93: \$0 TOTAL: \$14,995  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 E M O'BRIEN JSC/D STILLWELL 45-Elec Engr

**NAG 9-645 Mercer University Central Office 3583**  
 INVESTIGATION USE OF CURRENT CONVEYOR AMPLIFIERS I N  
 DESIGN/BIOMEDICAL SIGNAL CONDITIONERS  
*Period Obligations*  
 09/22/1992-09/20/1993 FY93: \$24,999 TOTAL: \$24,999  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 E M O'BRIEN JSC/D STILWELL 45-Elec Engr

**NGT 00-090-025 Morehouse College 3584**  
 PROJECT SPACE STRATEGIC PREPAREDNESS ADVANCING  
 CAREER  
*Period Obligations*  
 03/08/1989-05/31/1993 FY93: \$0 TOTAL: \$3,569,443  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 W JACKSON LARC/B PETERS 49-Engr, NEC  
 M W GREENE ....Y FREEMAN

**NAG 9-547 Morehouse School Med 3585**  
 PROSPECTIVE RISK ASSESSMENT MODEL FOR USE IN EXTEN DED  
 SPACE FLIGHT  
*Period Obligations*  
 10/15/1991-10/01/1993 FY93: \$150,000 TOTAL: \$230,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 W SULLIVAN JSC/R BILLICA 56-Medical Sciences

**NAG 9-644 Morehouse School Med 3586**  
 CELLULAR RESPONSE TO HYPOGRAVITY AND HYPERGRAVITY ST  
 RESS  
*Period Obligations*  
 09/22/1992-10/01/1994 FY93: \$321,000 TOTAL: \$321,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 G L SANFORD JSC/C SAMS 56-Medical Sciences

**NGT 00-090-003 Spelman College 3587**  
 GRADUATE STUDENT RESEARCHERS  
*Period Obligations*  
 12/01/1986-12/31/1993 FY93: \$1,347,581 TOTAL: \$5,468,706  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 E FALCONER HQ/B WHITE 45-Elec Engr

**NGT 00-090-049 Spelman College 3588**  
 UNDERGRADUATE STUDENT RESEARCHERS PRG  
*Period Obligations*  
 08/22/1991-08/31/1994 FY93: \$151,421 TOTAL: \$464,707  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 E FALCONER HQ/B WHITE 49-Engr, NEC

**NGT 00-090-072 Spelman College 3589**  
 UNDERGRADUATE STUDENT RESEARCHERS PROGRAM (UMF)  
*Period Obligations*  
 09/22/1992-08/14/1994 FY93: \$12,000 TOTAL: \$24,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 E FALCONER HQ/D RUSSELL 99-Multi-Discip

**NGT 00-090-089 Spelman College 3590**  
 GSRP  
*Period Obligations*  
 09/23/1992-07/30/1993 FY93: \$0 TOTAL: \$12,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 E FALCONER HQ/D RUSSELL 99-Multi-Discip

**NGT 00-090-090 Spelman College 3591**  
 UNDERGRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 09/24/1992-08/14/1994 FY93: \$12,000 TOTAL: \$24,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 E FALCONER HQ/D RUSSELL 99-Multi-Discip

**NASA'S UNIVERSITY PROGRAM**  
**GEORGIA (Continued)**

**NGT 00-090-091 Spelman College 3592**  
 UNDERGRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 09/23/1992-08/14/1993 FY93: \$0 TOTAL: \$12,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 E FALCONER HQ/D RUSSELL 99-Multi-Discip

**NGT 00-090-187 Spelman College 3600**  
 UNDERGRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 08/27/1993-08/14/1994 FY93: \$12,000 TOTAL: \$12,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 E FALCONER HQ/D RUSSELL 99-Multi-Discip

**NGT 00-090-092 Spelman College 3593**  
 UNDERGRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 09/17/1992-08/31/1993 FY93: \$12,000 TOTAL: \$24,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 E FALCONER HQ/D RUSSELL 99-Multi-Discip

**NAG 5-1192 University of Georgia 3601**  
 ANALYSIS OF FIFE DATA  
*Period Obligations*  
 08/01/1989-02/28/1993 FY93: \$0 TOTAL: \$291,500  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 E KANEMASU GSFC/F G HALL 31-Atmos Sci

**NGT 00-090-093 Spelman College 3594**  
 UNDERGRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 09/17/1992-08/14/1994 FY93: \$12,000 TOTAL: \$24,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 E FALCONER HQ/D RUSSELL 99-Multi-Discip

**NAG 5-1608 University of Georgia 3602**  
 A DEEP X-RAY SURVEY OF THE PLEIADES CLUSTER; THE B6 -A3  
 MAIN SEQUENCE STARS IN ORION  
*Period Obligations*  
 05/24/1991-06/14/1993 FY93: \$0 TOTAL: \$60,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J P CAILLAULT GSFC/ 11-Astronomy  
 ....R PETRE

**NGT 00-090-094 Spelman College 3595**  
 GSRP/UMF  
*Period Obligations*  
 09/24/1992-08/14/1994 FY93: \$12,000 TOTAL: \$24,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 E FALCONER HQ/D RUSSELL 99-Multi-Discip

**NAG 5-1610 University of Georgia 3603**  
 HIGH-RESOLUTION X-RAY OBSERVATIONS OF THE TRAPEZIU M  
 CLUSTER  
*Period Obligations*  
 10/15/1991-10/14/1994 FY93: \$25,872 TOTAL: \$56,417  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J P CAILLAULT GSFC/R PETRE 11-Astronomy

**NGT 00-090-095 Spelman College 3596**  
 GSRP  
*Period Obligations*  
 09/23/1992-08/14/1993 FY93: \$0 TOTAL: \$12,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 E FALCONER HQ/D RUSSELL 99-Multi-Discip

**NAG 5-2095 University of Georgia 3604**  
 NEAR-CONTACT BINARY STARS  
*Period Obligations*  
 09/15/1992-09/14/1993 FY93: \$18,000 TOTAL: \$18,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J S SHAW GSFC/R PETRE 11-Astronomy

**NGT 00-090-096 Spelman College 3597**  
 GSRP/UMF  
*Period Obligations*  
 09/24/1992-08/14/1994 FY93: \$12,000 TOTAL: \$24,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 E FALCONER HQ/D RUSSELL 99-Multi-Discip

**NAG 8-148 University of Georgia 3605**  
 JOINT VENTURE  
*Period Obligations*  
 02/02/1990-06/30/1993 FY93: \$39,250 TOTAL: \$123,750  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J S SHAW MSFC/C R CHAPPELL 11-Astronomy  
 ....N F SIX

**NGT 00-090-185 Spelman College 3598**  
 UNDERGRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 09/07/1993-08/14/1994 FY93: \$12,000 TOTAL: \$12,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 E FALCONER HQ/D K RUSSELL 99-Multi-Discip

**NAG 8-209 University of Georgia 3606**  
 FLEXIBLE AGRICULTURAL MANIPULATOR SYSTEM  
*Period Obligations*  
 10/21/1991-06/19/1993 FY93: \$0 TOTAL: \$30,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 W SIMONTON MSFC/P GILL 55-Agriculture Sci

**NGT 00-090-186 Spelman College 3599**  
 UNDERGRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 08/27/1993-08/14/1994 FY93: \$12,000 TOTAL: \$12,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 E FALCONER HQ/D K RUSSELL 99-Multi-Discip

**NAG 8-910 University of Georgia 3607**  
 MEASURING SURFACES FLUXES IN CAPE  
*Period Obligations*  
 04/29/1992-04/22/1993 FY93: \$535 TOTAL: \$29,465  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 K T KANEMASU MSFC/S GOODMAN 31-Atmos Sci

# **NASA'S UNIVERSITY PROGRAM**

## **GEORGIA (Continued)**

**NAGW 3469 University of Georgia 3608**  
 THE EIGHTH CAMBRIDGE WORKSHOP ON COOL STARS, STELLAR SYSTEMS AND THE SUN  
*Period Obligations*  
 04/09/1993-08/31/1994 FY93: \$10,000 TOTAL: \$10,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J CAILLAULT HQ/L J CAROFF 11-Astronomy

**NAS 9-18757 University of Georgia 3609**  
 SLS-3 FLIGHT EXPERIMENT/SPACE FLIGHT EFFECTS ON THE CLINICAL PHARMOKINETICS OF DRUGS  
*Period Obligations*  
 09/09/1992-04/30/1993 FY93: \$48,500 TOTAL: \$83,500  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S FELDMAN JSC/A L PLAZA 56-Medical Sciences  
 ....V S ELLERBE

**NASW 4670 University of Georgia 3610**  
 OPERATION OF A COMPUTER SOFTWARE MANAGEMENT INFORMATION SYSTEM  
*Period Obligations*  
 12/01/1991-11/30/1993 FY93: \$850,041 TOTAL: \$1,457,541  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J GIBSON HQ/B F HANNAN 29-Math/Computer, NEC

**NGT 00-050-739 University of Georgia 3611**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 11/08/1991-08/31/1993 FY93: \$0 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S FELDMAN JSC/S GOLDSTIEN 56-Medical Sciences

**NGT 00-070-345 University of Georgia 3612**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED MINORITY FOCUS PROGRAM  
*Period Obligations*  
 06/30/1993-06/30/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R HODSON HQ/D K RUSSELL 39-Env Sci, NEC

## **HAWAII**

**NAG 1-1487 University of Hawaii - Manoa 3613**  
 IMPROVED STRESS RECOVERY AND ERROR ESTIMATION IN FINITE ELEMENT ANALYSIS  
*Period Obligations*  
 03/16/1993-03/15/1994 FY93: \$55,357 TOTAL: \$55,357  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 H R RIGGS LARC/A TESSLER 46-Mech Engr

**NAG 2-758 University of Hawaii - Manoa 3614**  
 NITRIC-OXIDE FLUXES FROM TROPICAL AGRICULTURE  
*Period Obligations*  
 02/10/1992-11/30/1993 FY93: \$0 TOTAL: \$68,900  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 E A GRASER ARC/J MAZZURCO 39-Env Sci, NEC

**NAG 3-1083 University of Hawaii - Manoa 3615**  
 STUDIES OF THE THERMAL AND OPTICAL RESPONSE IN HYDROGEN ATOMS IN SOLID HYDROGEN  
*Period Obligations*  
 10/20/1989-04/07/1994 FY93: \$13,964 TOTAL: \$288,964  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J R GAINES LERC/B PALASZEWSKI 13-Physics  
 C A VAUSE

**NAG 5-146 University of Hawaii - Manoa 3616**  
 MAGNESIUM OBSERVATIONS OF A YOUNG CLUSTER  
*Period Obligations*  
 03/15/1981-11/30/1992 FY93: \$0 TOTAL: \$709,046  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 T SIMON GSFC/D WEST 11-Astronomy  
 K CARPENTER  
 F PRADERIE

**NAG 5-931 University of Hawaii - Manoa 3617**  
 LOW COMPLEXITY, HIGH-PERFORMANCE, BANDWIDTH EFFICIENT MODULATION TECHNIQUES FOR SATELLITE AND SPACE COMMUNICATIONS  
*Period Obligations*  
 07/01/1987-02/28/1994 FY93: \$56,000 TOTAL: \$431,271  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S LIN GSFC/J C MORAKIS 49-Engr, NEC  
 ....W H MILLER

**NAG 5-1446 University of Hawaii - Manoa 3618**  
 NORTH ECLIPTIC POLE SKY SURVEY  
*Period Obligations*  
 08/20/1990-09/14/1992 FY93: \$0 TOTAL: \$90,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J P HENRY GSFC/R PETRE 11-Astronomy

**NAG 5-1574 University of Hawaii - Manoa 3619**  
 OPTICAL X-RAY GAMMA RAY STUDIES OF SOLAR FLARES  
*Period Obligations*  
 05/01/1991-11/14/1993 FY93: \$44,041 TOTAL: \$81,041  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R C CANFIELD GSFC/J P NORRIS 11-Astronomy  
 ....D A KNIFFEN

**NAG 5-1685 University of Hawaii - Manoa 3620**  
 MORPHOLOGY OF THE DARK MATTER IN TWO RICH CLUSTERS OF GALAXIES  
*Period Obligations*  
 08/12/1991-08/14/1993 FY93: \$0 TOTAL: \$10,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J P HENRY GSFC/R PETRE 11-Astronomy

**NAG 5-1741 University of Hawaii - Manoa 3621**  
 A SEARCH FOR LUMINOUS INFRARED GALAXIES  
*Period Obligations*  
 08/15/1991-08/14/1994 FY93: \$40,000 TOTAL: \$115,600  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D B SANDERS GSFC/D WEST 11-Astronomy



**NASA'S UNIVERSITY PROGRAM**  
**HAWAII (Continued)**

**NAG 5-1752 University of Hawaii - Manoa 3622**  
 THE JETS IN NGC 1097  
*Period Obligations*  
 08/16/1991-02/28/1994 FY93: \$20,000 TOTAL: \$30,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R B TULLY GSFC/R PETRE 11-Astronomy

**NAG 5-1789 University of Hawaii - Manoa 3623**  
 FURTHER STUDIES OF CLUSTERS OF GALAXIES USING ROSA T  
 ALL-SKY SURVEY DATA  
*Period Obligations*  
 10/28/1991-10/31/1993 FY93: \$45,000 TOTAL: \$74,400  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J P HENRY GSFC/R PETRE 11-Astronomy

**NAG 5-1823 University of Hawaii - Manoa 3624**  
 STELLAR LYMAN ALPHA EMISSION AND THE LOCAL INTERSTELLAR  
 MEDIUM  
*Period Obligations*  
 11/07/1991-11/14/1992 FY93: \$0 TOTAL: \$20,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 T SIMON GSFC/D WEST 11-Astronomy

**NAG 5-1839 University of Hawaii - Manoa 3625**  
 THE ATMOSPHERIC IMPACT OF ERUPTIONS: INVESTIGATIONS OF  
 SOURCE FUNCTIONS, PLUME DISSIPATION . . .  
*Period Obligations*  
 12/02/1991-12/31/1993 FY93: \$43,000 TOTAL: \$151,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S SELF GSFC/L S WALTER 31-Atmos Sci  
 M R RAMPINO

**NAG 5-1880 University of Hawaii - Manoa 3626**  
 PSPC OBS. OF 12 EMSS UNIDENTIFIED SOURCES: VERY DISTANT  
 CLUSTERS OF GALAXIES OR UNUSUAL X-RAY EMIT  
*Period Obligations*  
 02/10/1992-02/14/1994 FY93: \$0 TOTAL: \$17,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J P HENRY GSFC/R PETRE 11-Astronomy

**NAG 5-1928 University of Hawaii - Manoa 3627**  
 ROSAT OBSERVATIONS OF GALAXY POPULATIONS IN THE HAWAII  
 DEEP NEAR-INFRARED SURVEY  
*Period Obligations*  
 03/03/1992-03/14/1994 FY93: \$10,000 TOTAL: \$50,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 L L COWIE GSFC/R PETRE 11-Astronomy

**NAG 5-1996 University of Hawaii - Manoa 3628**  
 X-RAY EVOLUTION OF CLUSTERS OF GALAXIES  
*Period Obligations*  
 06/12/1992-06/14/1994 FY93: \$0 TOTAL: \$32,707  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J P HENRY GSFC/D WEST 11-Astronomy

**NAG 5-2022 University of Hawaii - Manoa 3629**  
 THE TIME DECAY OF CORONAL ACTIVITY  
*Period Obligations*  
 07/15/1992-07/14/1994 FY93: \$23,177 TOTAL: \$38,177  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 T SIMON GSFC/R PETRE 11-Astronomy

**NAG 5-2132 University of Hawaii - Manoa 3630**  
 MINKOWSKI'S OBJECT  
*Period Obligations*  
 11/09/1992-11/14/1993 FY93: \$15,000 TOTAL: \$15,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 K C CHAMBERS GSFC/R PETRE 11-Astronomy

**NAG 5-2150 University of Hawaii - Manoa 3631**  
 1) CONVECTION, GRANULATION, AND THERMAL BIFURCATION IN  
 THE A STARS 2) ACTIVITY CYCLE OF THE HERBIG.  
*Period Obligations*  
 12/14/1992-01/31/1994 FY93: \$20,910 TOTAL: \$20,910  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 T SIMON GSFC/D WEST 11-Astronomy

**NAG 5-2275 University of Hawaii - Manoa 3632**  
 EUVE OBSERVATIONS OF THE DME FLARE STAR AD LEO  
*Period Obligations*  
 05/26/1993-05/31/1994 FY93: \$36,000 TOTAL: \$36,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 T SIMON GSFC/R OLIVERSEN 11-Astronomy

**NAG 8-848 University of Hawaii - Manoa 3633**  
 STUDY OF AEROSOL IN THE ATMOSPHERE  
*Period Obligations*  
 08/30/1990-07/30/1993 FY93: \$0 TOTAL: \$171,767  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A D CLARKE MSFC/J ROTHERMEL 31-Atmos Sci

**NAG 9-428 University of Hawaii - Manoa 3634**  
 GEOLOGICAL REQUIREMENTS IN FUTURE LUNAR EXPLORATION  
*Period Obligations*  
 07/01/1990-07/01/1992 FY93: \$12 TOTAL: \$29,988  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 G J TAYLOR JSC/D P BLANCHARD 19-Phys Sci, NEC

**NAG 9-454 University of Hawaii - Manoa 3635**  
 ORIGIN OF METEORITE PARENT BODIES AND THE MOON  
*Period Obligations*  
 07/01/1990-03/01/1993 FY93: \$0 TOTAL: \$875,743  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 K KEIL JSC/I D BROWNE 19-Phys Sci, NEC

**NAGW 133 University of Hawaii - Manoa 3636**  
 VOLATILE EVOLUTION  
*Period Obligations*  
 01/01/1981-10/31/1991 FY93: \$0 TOTAL: \$511,649  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 F P FANALE HQ/J R UNDERWOOD 32-Geological Sci  
 G J TAYLOR ....J M BOYCE  
 S JOHNSON

# NASA'S UNIVERSITY PROGRAM

## HAWAII (Continued)

**NAGW 237**                      **University of Hawaii - Manoa**                      **3637**  
 GEOLOGIC STUDIES OF PLANETARY VOLCANIC AND IMPACT  
 PROCESS.  

<i>Period</i>		<i>Obligations</i>
08/01/1981-10/31/1993	FY93: \$60,600	TOTAL: \$704,915
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
B R HAWKE	HQ/J UNDERWOOD	32-Geological Sci
	....J M BOYCE	

**NAGW 437**                      **University of Hawaii - Manoa**                      **3638**  
 ANAL OF MARTIAN SURF MATERIALS USING RADAR THEMALA AND  
 COLOR DATA AND GEOL EVOL OF THE HEAVILY CRATERED  

<i>Period</i>		<i>Obligations</i>
03/01/1983-10/31/1993	FY93: \$137,600	TOTAL: \$841,775
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
P M MARK	HQ/J R UNDERWOOD	32-Geological Sci
	....J M BOYCE	

**NAGW 583**                      **University of Hawaii - Manoa**                      **3639**  
 VOLATILE MIGRATION AND PHASE CHANGES ON MARS.  

<i>Period</i>		<i>Obligations</i>
02/01/1984-09/30/1992	FY93: \$0	TOTAL: \$530,599
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
F P FANALE	HQ/J UNDERWOOD	32-Geological Sci
	....J M BOYCE	

**NAGW 633**                      **University of Hawaii - Manoa**                      **3640**  
 VOLATILES ON PLANETARY SATELLITES  

<i>Period</i>		<i>Obligations</i>
06/21/1984-11/20/1991	FY93: \$0	TOTAL: \$368,533
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
F P FANALE	HQ/J UNDERWOOD	32-Geological Sci
	....J M BOYCE	

**NAGW 712**                      **University of Hawaii - Manoa**                      **3641**  
 SPECTRAL STUDIES OF POSSIBLE ASTEROID MATERIALS  

<i>Period</i>		<i>Obligations</i>
01/01/1985-10/31/1993	FY93: \$31,000	TOTAL: \$293,200
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
J F BELL	HQ/J UNDERWOOD JR	32-Geological Sci
	....J M BOYCE	

**NAGW 723**                      **University of Hawaii - Manoa**                      **3642**  
 MOD SOLAR CHROMOSPHERE BY SUBMILL OBS OF SOLAR LIMB  

<i>Period</i>		<i>Obligations</i>
03/15/1985-09/30/1991	FY93: \$1,086	TOTAL: \$213,914
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
C LINDSEY	HQ/J D BOHLIN	13-Physics
	....S KANE	

**NAGW 755**                      **University of Hawaii - Manoa**                      **3643**  
 CHARACTERIZATION OF INFRARED DETECTOR ARRAYS  

<i>Period</i>		<i>Obligations</i>
06/15/1985-11/30/1993	FY93: \$175,000	TOTAL: \$2,245,890
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
D N HALL	HQ/R V STACHNIK	13-Physics
	....E J WEILER	

**NAGW 802**                      **University of Hawaii - Manoa**                      **3644**  
 INFRARED SPECTRAL STUDIES OF ASTEROIDS  

<i>Period</i>		<i>Obligations</i>
09/01/1985-12/31/1993	FY93: \$38,000	TOTAL: \$304,405
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
W J BELL	HQ/H C BRINTON	11-Astronomy
	....J H RAHE	

**NAGW 864**                      **University of Hawaii - Manoa**                      **3645**  
 RADIATING SOLAR PLASMA  

<i>Period</i>		<i>Obligations</i>
02/01/1986-07/31/1993	FY93: \$0	TOTAL: \$881,700
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
A N MCCLYMONT	HQ/J D BOHLIN	13-Physics
G FISHER	....S KANE	

**NAGW 959**                      **University of Hawaii - Manoa**                      **3646**  
 INTERSTELLAR AND INTERGALLACTIC CGAS  

<i>Period</i>		<i>Obligations</i>
07/01/1986-07/31/1993	FY93: \$66,000	TOTAL: \$300,016
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
L L COWIE	HQ/F C GILLET	11-Astronomy
	....N BOGGESS	

**NAGW 1053**                      **University of Hawaii - Manoa**                      **3647**  
 REGIONAL PLANETARY IMAGE CENTER  

<i>Period</i>		<i>Obligations</i>
11/15/1986-11/14/1993	FY93: \$37,000	TOTAL: \$222,514
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
B R HAWKE	HQ/T A MAXWELL	32-Geological Sci

**NAGW 1162**                      **University of Hawaii - Manoa**                      **3648**  
 TESTING A MODEL FOR THE MORPHOLOGICAL EVOLUTION OF  
 VOLCANOES  

<i>Period</i>		<i>Obligations</i>
09/09/1987-08/31/1993	FY93: \$65,000	TOTAL: \$471,946
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
P J MARK	HQ/M BALTUCK	32-Geological Sci
	....R E MURPHY	

**NAGW 1385**                      **University of Hawaii - Manoa**                      **3649**  
 ULTRA HIGH RESOLUTION EARTH BASED LUNAR RADAR  

<i>Period</i>		<i>Obligations</i>
07/26/1988-09/30/1992	FY93: \$0	TOTAL: \$139,230
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
S H ZISK	HQ/J R UNDERWOOD	32-Geological Sci

**NAGW 1421**                      **University of Hawaii - Manoa**                      **3650**  
 MINERALOGICAL MAPPING OF THE LUNAR SURFACE  

<i>Period</i>		<i>Obligations</i>
08/09/1988-09/30/1993	FY93: \$36,500	TOTAL: \$182,328
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
P G LUCEY	HQ/T A MAXWELL	32-Geological Sci

**NAGW 1454**                      **University of Hawaii - Manoa**                      **3651**  
 SOLAR IMAGING VECTOR MAGNETOGRAPH  

<i>Period</i>		<i>Obligations</i>
09/08/1988-07/31/1993	FY93: \$0	TOTAL: \$358,501
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
R C CANFIELD	HQ/J D BOHLIN	13-Physics
	....S KANE	

**NAGW 1507**                      **University of Hawaii - Manoa**                      **3652**  
 TEMPORAL MONITORING OF ACTIVE COMETS  

<i>Period</i>		<i>Obligations</i>
11/14/1988-09/30/1991	FY93: \$0	TOTAL: \$97,633
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
D C JEWITT	HQ/J H RAHE	11-Astronomy

**NASA'S UNIVERSITY PROGRAM**  
**HAWAII (Continued)**

**NAGW 1542 University of Hawaii - Manoa 3653**  
 RESEARCH IN CORONAL AND CHROMOSPHERIC PHYSICS IN SUPPORT  
*Period Obligations*  
 12/09/1988-10/31/1993 FY93: \$339,966 TOTAL: \$1,636,093  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R C CANFIELD HQ/J D BOHLIN 13-Physics  
 ....S KANE

**NAGW 1698 University of Hawaii - Manoa 3654**  
 TOMOGRAPHY OF SOLAR ACTIVE REGIONS  
*Period Obligations*  
 07/07/1989-01/31/1992 FY93: \$644 TOTAL: \$266,050  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 B J LABONTE HQ/J D BOHLIN 13-Physics  
 ....S KANE

**NAGW 1699 University of Hawaii - Manoa 3655**  
 LINEMAN-ALPHA TUNABLE ACOUSTO-OPTIC FILTER  
*Period Obligations*  
 02/27/1989-10/31/1993 FY93: \$0 TOTAL: \$180,640  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 F Q ORRALL HQ/J D BOHLIN 13-Physics  
 ....S KANE

**NAGW 1897 University of Hawaii - Manoa 3656**  
 OBSERVATIONAL EVIDENCE OF AGING PROCESSES IN COMET S  
*Period Obligations*  
 04/06/1990-10/31/1993 FY93: \$79,479 TOTAL: \$255,049  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 K J MEECH HQ/J RAHE 11-Astronomy

**NAGW 1916 University of Hawaii - Manoa 3657**  
 OPERATION OF THE UNIVERSITY OF HAWAII TELESCOPE AT MAUNA KEA OBSERVATORY  
*Period Obligations*  
 04/10/1990-10/31/1993 FY93: \$230,000 TOTAL: \$1,065,661  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D B HALL HQ/H C BRINTON 11-Astronomy

**NAGW 1929 University of Hawaii - Manoa 3658**  
 NAGW-1929/UNIV OF HAWAII/LANDSAT THEMATIC MAPPER STUDIES OF ANDEAN VOLCANOES  
*Period Obligations*  
 01/26/1990-10/31/1992 FY93: \$0 TOTAL: \$178,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S SELF HQ/M BALTUCK 32-Geological Sci  
 ....T J PIEPER

**NAGW 1991 University of Hawaii - Manoa 3659**  
 STUDY OF TRITON AND THE PLUTO-CHARON SYSTEM  
*Period Obligations*  
 02/14/1990-10/31/1993 FY93: \$11,503 TOTAL: \$81,503  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D J THOLEN HQ/J H RAHE 11-Astronomy

**NAGW 2019 University of Hawaii - Manoa 3660**  
 NAGW-2019/UNIV HAWAII/VISIBLE AND INFRARED INVESTIGATIONS OF PLANET-CROSSING ASTEROIDS AND OUTER SOLAR  
*Period Obligations*  
 03/05/1990-12/31/1991 FY93: \$0 TOTAL: \$30,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D J THOLEN HQ/J H RAHE 11-Astronomy

**NAGW 2153 University of Hawaii - Manoa 3661**  
 OUTER SOLAR SYSTEM NOMENCLATURE  
*Period Obligations*  
 08/14/1990-02/28/1992 FY93: \$0 TOTAL: \$22,687  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 T OWEN HQ/T A MAXWELL 32-Geological Sci

**NAGW 2174 University of Hawaii - Manoa 3662**  
 REMOTE COMPOSITIONAL ANALYSIS OF LUNAR AND PLANETARY SURFACES  
*Period Obligations*  
 07/23/1990-09/30/1993 FY93: \$90,000 TOTAL: \$479,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 T B MCCORD HQ/T A MAXWELL 32-Geological Sci

**NAGW 2278 University of Hawaii - Manoa 3663**  
 OBSERVATIONAL STUDIES OF COMETS AND THE POTENTIAL SITES OF PLANETARY SYSTEM FORMATION  
*Period Obligations*  
 05/21/1991-10/31/1993 FY93: \$55,000 TOTAL: \$165,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A TOKUNAGA HQ/J A NUTH 19-Phys Sci, NEC

**NAGW 2463 University of Hawaii - Manoa 3664**  
 STUDIES IN PLANETARY SCIENCE  
*Period Obligations*  
 08/27/1991-12/31/1993 FY93: \$15,000 TOTAL: \$116,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 B A SMITH HQ/L KALUZIENSKI 11-Astronomy

**NAGW 2468 University of Hawaii - Manoa 3665**  
 A GLOBAL ASSESSMENT OF ACTIVE VOLCANISM VOLCANIC HAZARDS, AND VOLCANIC INPUTS TO THE ATMOS. FROM EO  
*Period Obligations*  
 04/30/1991-12/31/1993 FY93: \$275,000 TOTAL: \$665,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 P MOUQUINIS-MARK HQ/M BALTUCK 39-Env Sci, NEC  
 ....B J MALCOLM

**NAGW 2521 University of Hawaii - Manoa 3666**  
 VOLCANISM IN ALASKA AND ALEUTIANS FROM ERS-1  
*Period Obligations*  
 07/25/1991-04/30/1994 FY93: \$25,500 TOTAL: \$85,500  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 P J MOUGINIS-MARK HQ/R H THOMAS 32-Geological Sci

**NAGW 2631 University of Hawaii - Manoa 3667**  
 LABORATORY INVESTIGATIONS OF VOLATILE TRAPPING IN COMETS  
*Period Obligations*  
 09/04/1991-02/28/1994 FY93: \$45,000 TOTAL: \$215,343  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 T C OWEN HQ/J D RUMMEL 12-Chemistry

**NASA'S UNIVERSITY PROGRAM**  
**HAWAII (Continued)**

**NAGW 2650 University of Hawaii - Manoa 3668**  
 NAGW-2650/UNIV HAWAII/SPECTROSCOPIC OBSERVATIONS OF THE PLANETS  

<i>Period</i>	<i>Obligations</i>	
08/19/1991-03/31/1994	FY93: \$28,500	TOTAL: \$111,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
T OWEN	HQ/J RAHE	11-Astronomy

**NAGW 3099 University of Hawaii - Manoa 3676**  
 NAGW-3099/UNIV HAWAII/INSTRUMENTATION FOR ACHIEVING HIGH ANGULAR RESOLUTION ON THE NASA INFRARED  

<i>Period</i>	<i>Obligations</i>	
06/17/1992-02/28/1994	FY93: \$589,697	TOTAL: \$1,038,102
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
B SMITH	HQ/H C BRINTON	11-Astronomy

**NAGW 2671 University of Hawaii - Manoa 3669**  
 MONITORING IO VOLCANOES WITH INFRARED IMAGING  

<i>Period</i>	<i>Obligations</i>	
08/30/1991-10/31/1992	FY93: \$0	TOTAL: \$44,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
J SPENCER	HQ/R H RAHE	11-Astronomy

**NAGW 3218 University of Hawaii - Manoa 3677**  
 HIGH RESOLUTION STEREO CAMERA AND OMEGA IMAGING SPECTROMETER INVESTIGATIONS  

<i>Period</i>	<i>Obligations</i>	
11/02/1992-06/30/1994	FY93: \$73,000	TOTAL: \$73,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
T B MCCORD	HQ/J M BOYCE	32-Geological Sci

**NAGW 2917 University of Hawaii - Manoa 3670**  
 PHYSICAL PROPERTIES OF ACTIVE COMETS  

<i>Period</i>	<i>Obligations</i>	
02/27/1992-02/28/1994	FY93: \$54,270	TOTAL: \$89,270
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
D C JEWITT	HQ/W L QUAIDE	11-Astronomy

**NAGW 3281 University of Hawaii - Manoa 3678**  
 ORIGIN OF METEORITE PARENT BODIES AND THE MOON  

<i>Period</i>	<i>Obligations</i>	
12/04/1992-11/30/1993	FY93: \$298,362	TOTAL: \$298,362
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
K KEIL	HQ/H C BRINTON	32-Geological Sci

**NAGW 2955 University of Hawaii - Manoa 3671**  
 QUANTITATIVE ANALYSIS OF SMALL VOLCANOES ON MARS AND VENUS  

<i>Period</i>	<i>Obligations</i>	
03/03/1992-10/31/1993	FY93: \$35,000	TOTAL: \$70,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
P J MARK	HQ/J M BOYCE	32-Geological Sci

**NAGW 3294 University of Hawaii - Manoa 3679**  
 NAGW-3294/UNIV HAWAII/VOLATILE EVOLUTION  

<i>Period</i>	<i>Obligations</i>	
11/27/1992-10/31/1993	FY93: \$100,000	TOTAL: \$100,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
F P FANALE	HQ/H C BRINTON	32-Geological Sci

**NAGW 2969 University of Hawaii - Manoa 3672**  
 THE PHYSICS OF FLARING ATMOSPHERES  

<i>Period</i>	<i>Obligations</i>	
03/20/1992-01/31/1993	FY93: \$0	TOTAL: \$50,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
A MCCLYMONT	HQ/W J WAGNER	13-Physics
	....J D BOHLIN	

**NAGW 3398 University of Hawaii - Manoa 3680**  
 A DEEP OPTICAL SURVEY OF THE ECLIPTIC  

<i>Period</i>	<i>Obligations</i>	
03/09/1993-02/28/1994	FY93: \$34,728	TOTAL: \$34,728
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
D JEWITT	HQ/J A NUTH	19-Phys Sci, NEC

**NAGW 3015 University of Hawaii - Manoa 3673**  
 PRESENT DAY PLATE MOTIONS AND THE RHEOLOGY OF THE PLATE-MANTLE SYSTEM  

<i>Period</i>	<i>Obligations</i>	
04/03/1992-12/31/1993	FY93: \$64,000	TOTAL: \$126,382
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
D BERCOVICI	HQ/R E MURPHY	32-Geological Sci
	....D M BUTLER	

**NAGW 3409 University of Hawaii - Manoa 3681**  
 THERMAL EMISSION SPECTROSCOPY OF AIRLESS BODIES  

<i>Period</i>	<i>Obligations</i>	
02/16/1993-02/28/1994	FY93: \$37,240	TOTAL: \$37,240
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
P G LUCEY	HQ/H C BRINTON	11-Astronomy

**NAGW 3044 University of Hawaii - Manoa 3674**  
 NAGW-3044/UNIV HAWAII/OBSERVATIONS OF SPACECRAFT TARGETS, UNUSUAL OBJECTS, AND OTHER TARGETS  

<i>Period</i>	<i>Obligations</i>	
04/24/1992-03/31/1994	FY93: \$25,000	TOTAL: \$50,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
D J THOLEN	HQ/H C BRINTON	11-Astronomy

**NAGW 3427 University of Hawaii - Manoa 3682**  
 GROUNDBASED TELESCOOPIC OBSERVATIONS IN SUPPORT OF THE MARS MISSION  

<i>Period</i>	<i>Obligations</i>	
02/25/1992-10/31/1993	FY93: \$49,195	TOTAL: \$49,195
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
P LUCEY	HQ/H C BRINTON	11-Astronomy

**NAGW 3093 University of Hawaii - Manoa 3675**  
 MODELING AND MONITORING OF THE PLUTO/CHARRON SYSTEM  

<i>Period</i>	<i>Obligations</i>	
05/26/1992-10/31/1993	FY93: \$0	TOTAL: \$10,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
D J THOLEN	HQ/H C BRINTON	11-Astronomy

**NAGW 3493 University of Hawaii - Manoa 3683**  
 DEV. OF AN OPT. MOD. FOR EST. PRI. PRO. RAT. FROM SEA W. COL. IMA. AND AVHRR CLOUD CLIM.  

<i>Period</i>	<i>Obligations</i>	
04/02/1992-02/28/1994	FY93: \$13,694	TOTAL: \$13,694
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
R BIDIGARE	HQ/D E WICKLAND	33-Oceanography
	....A C JANETOS	

**NASA'S UNIVERSITY PROGRAM**  
**HAWAII (Continued)**

**NAGW 3500 University of Hawaii - Manoa 3684**  
 EVOLUTION OF VOLCANOES AND THEIR SUMMIT CALEDRAS O N VENUS  
*Period Obligations*  
 03/31/1993-03/31/1994 FY93: \$30,000 TOTAL: \$30,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 P J MOUGINIS-MARK HQ/J T BERGSTALH 32-Geological Sci

**NAGW 3531 University of Hawaii - Manoa 3685**  
 PLAS. DEFOR. OF VENUS LITH. OVER A DYN. MAN. SYN. OF SATELLITE DATA ANALYSIS WITH  
*Period Obligations*  
 04/22/1993-04/01/1994 FY93: \$60,306 TOTAL: \$60,306  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D BERCOVICI HQ/J T BERGSTALH 32-Geological Sci

**NAGW 3537 University of Hawaii - Manoa 3686**  
 LUNAR SCIENCE STRATEGIES AND MGMT OF THE LUNAR EXP LORATION SCIENCE WORKING GROUP  
*Period Obligations*  
 04/22/1993-09/30/1993 FY93: \$76,773 TOTAL: \$76,773  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 G J TAYLOR HQ/C PILCHER 32-Geological Sci

**NAGW 3548 University of Hawaii - Manoa 3687**  
 P-MODE SCATTERING BY SUNSPOTS AND SUBSURFACE MAGNETIC FIELDS  
*Period Obligations*  
 04/22/1993-03/31/1994 FY93: \$44,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D BRAUN HQ/W J WAGNER 11-Astronomy  
 ....J D BOHLIN

**NAGW 3643 University of Hawaii - Manoa 3688**  
 WIDE FIELD IMAGING OF SOLAR SYSTEM OBJECTS WITH AN 8192X8192 CCD MOSAIC  
*Period Obligations*  
 06/25/1993-02/28/1994 FY93: \$1,243,534 TOTAL: \$1,243,534  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D HALL HQ/H C BRINTON 11-Astronomy

**NAGW 3684 University of Hawaii - Manoa 3689**  
 LAVA FLOW DYNAMICS  
*Period Obligations*  
 08/06/1993-02/28/1994 FY93: \$80,500 TOTAL: \$80,500  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 G J TAYLOR HQ/J M BOYCE 32-Geological Sci

**NAGW 3712 University of Hawaii - Manoa 3690**  
 PARTICIPATION IN CLEMENTINE SCIENCE TEAM  
*Period Obligations*  
 08/13/1993-06/30/1994 FY93: \$20,000 TOTAL: \$20,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 P LUCEY HQ/H C BRINTON 11-Astronomy

**NAGW 3721 University of Hawaii - Manoa 3691**  
 FORMATION AND HISTORY OF AEROSOLS IN TROPOSPHERIC AND STRATOSPHERIC VOLCANIC ERUPTION CLOUDS  
*Period Obligations*  
 09/10/1993-07/31/1996 FY93: \$57,905 TOTAL: \$57,905  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S SELF HQ/M BALTUCK 31-Atmos Sci  
 ....E PAYLOR

**NAS 2-13808 University of Hawaii - Manoa 3692**  
 CONNECTIVITY SERVICES BETWEEN SCIENCE COMMUNITY AND THE US PACIFIC RIM NATIONS THROUGH PACOM CENTER  
*Period Obligations*  
 02/26/1993-07/31/1993 FY93: \$245,000 TOTAL: \$245,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 T N NEILSON ARC/M MEDIN 22-Computer Science  
 ....M LEON

**NAS 2-13894 University of Hawaii - Manoa 3693**  
 CONNECTIVITY SERV BTWN SCIENCE COMMUNITIES AT NASA AND PACIFIC RIM NATIONS THRU PACCOM CONSORTIUM  
*Period Obligations*  
 08/01/1993-11/30/1993 FY93: \$228,530 TOTAL: \$228,530  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 T N NELSON ARC/M NELSON 22-Computer Science  
 ....M LEON

**NAS 5-30535 University of Hawaii - Manoa 3694**  
 LASER RANGING OPERATIONS AND DEVELOPMENT AT LURE OBSERVATORY  
*Period Obligations*  
 02/01/1989-01/31/1994 FY93: \$510,000 TOTAL: \$3,007,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 L MACKNIK GSFC/J F MCGARRY 11-Astronomy  
 L S MACKNIK

**NAS 5-30951 University of Hawaii - Manoa 3695**  
 INTERPRETATION OF GALILEO PROBE MASS SPECTROMETER DATA  
*Period Obligations*  
 01/15/1991-01/14/1995 FY93: \$0 TOTAL: \$36,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 T B OWEN GSFC/J R RICHARDS 31-Atmos Sci

**NAS 5-31722 University of Hawaii - Manoa 3696**  
 EOS INVESTIGATION 'GLOBAL HYDROLOGIC PROCESSES AND CLIMATE'  
*Period Obligations*  
 10/08/1991-10/07/1996 FY93: \$42,500 TOTAL: \$107,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R LUKAS GSFC/W LAU 39-Env Sci, NEC

**NASW 4481 University of Hawaii - Manoa 3697**  
 OPERATION AND MAINTENANCE OF THE NASA INFRARED TELESCOPE FACILITY  
*Period Obligations*  
 07/09/1990-01/31/1994 FY93: \$2,520,000 TOTAL: \$9,671,640  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D B HALL HQ/Q RAHE 11-Astronomy

# NASA'S UNIVERSITY PROGRAM

## HAWAII (Continued)

**NGT 00-030-009 University of Hawaii - Manoa 3698**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
 10/11/1990-08/31/1993 FY93: \$0 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 T THODARSON HQ/G ASRAR 32-Geological Sci

**NGT 00-050-930 University of Hawaii - Manoa 3706**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 07/01/1992-06/30/1994 FY93: \$22,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 G J TAYLOR HQ/J K ALEXANDER 32-Geological Sci

**NGT 00-030-041 University of Hawaii - Manoa 3699**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
 09/22/1991-08/31/1993 FY93: \$0 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J N PORTER HQ/D M BUTLER 33-Oceanography  
 A CLARKE ....G S WILSON

**NGT 00-051-124 University of Hawaii - Manoa 3707**  
 GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 07/05/1993-07/31/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 B LABONTE HQ/D HOLLAND 11-Astronomy

**NGT 00-030-054 University of Hawaii - Manoa 3700**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
 09/06/1991-08/31/1994 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 K A HORTON HQ/D M BUTLER 32-Geological Sci  
 P MOUGINIS-MARK ....G S WILSON

## IDAHO

**NAG 8-269 Idaho State University 3708**  
 JOVE  
*Period Obligations*  
 12/03/1992-03/31/1993 FY93: \$31,000 TOTAL: \$31,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S JOHNSON MSFC/F SIX 11-Astronomy  
 R RODRIGUAZ

**NGT 00-030-104 University of Hawaii - Manoa 3701**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
 11/02/1992-08/31/1994 FY93: \$44,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J R CHRISTIAN HQ/G ASRAR 32-Geological Sci  
 ....D M BUTLER

**NAG 5-1878 University of Idaho 3709**  
 RADIATION HARD VLSI ELECTRONICS  
*Period Obligations*  
 01/23/1992-01/31/1993 FY93: \$136,760 TOTAL: \$75,804  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S WHITAKER GSFC/W H MILLER 49-Engr, NEC  
 G MAKI ....D A DALTON

**NGT 00-030-137 University of Hawaii - Manoa 3702**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
 11/02/1992-08/31/1994 FY93: \$44,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R E HOLASEK HQ/G ASRAR 32-Geological Sci  
 ....D M BUTLER

**NAG 5-1963 University of Idaho 3710**  
 HIGH PERFORMANCE LOSSY DATA COMPRESSION SYSTEM  
*Period Obligations*  
 04/06/1992-04/14/1993 FY93: \$99,890 TOTAL: \$110  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 K CAMERON GSFC/P S YEH 49-Engr, NEC  
 ....W H MILLER

**NGT 00-040-020 University of Hawaii - Manoa 3703**  
 NGT-40020/UNIV OF HAWAII/NAT'L SPACE GRANT COLLGE AND FELLOWSHIP PROGRAM  
*Period Obligations*  
 03/07/1990-01/31/1994 FY93: \$333,000 TOTAL: \$1,163,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 P MOUGINIS-MARK HQ/E T SCHWARTZ 99-Multi-Discip

**NAG 5-1964 University of Idaho 3711**  
 ADVANCED SPACE QUALIFIED LOSSLESS DATA COMPRESSION VLSI  
*Period Obligations*  
 04/06/1992-04/14/1993 FY93: \$130,000 TOTAL: \$0  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J VENBRUX GSFC/P S YEH 49-Engr, NEC  
 ....W H MILLER

**NGT 00-050-510 University of Hawaii - Manoa 3704**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 09/08/1989-08/31/1993 FY93: \$0 TOTAL: \$62,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 T B MCCORD HQ/F C OWENS 19-Phys Sci, NEC

**NAG 5-1965 University of Idaho 3712**  
 SPACE QUALIFIED REED SOLOMON ENCODER/DECODER VLSI  
*Period Obligations*  
 04/06/1992-04/14/1993 FY93: \$214,580 TOTAL: \$85,420  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S WHITAKER GSFC/W H MILLER 49-Engr, NEC  
 G K MAKI ....J C MORAKIS

**NGT 00-050-811 University of Hawaii - Manoa 3705**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 08/01/1991-07/30/1994 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J P HENRY HQ/J ALEXANDER 11-Astronomy

# NASA'S UNIVERSITY PROGRAM

## IDAHO (Continued)

**NAGW 1406 University of Idaho 3713**  
 UNIV. SPACE ENG. RESEARCH CENTER-VLSI HARDWARE ACC.  
 CTR.  
*Period* *Obligations*  
 08/16/1988-10/31/1992 FY93: \$129,545 TOTAL: \$6,346,313  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 G K MAKI HQ/P H SMITH 49-Engr, NEC

**NAS 5-26534 University of Idaho 3714**  
 DESIGN DEVELOP FAB AND TESTING/REED-SOLOM ENCODER  
*Period* *Obligations*  
 04/28/1981-01/15/1993 FY93: \$4,190 TOTAL: \$1,347,076  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 G K MAKI GSFC/W MILLER 45-Elec Engr

**NCA 2-545 University of Idaho 3715**  
 A STUDY OF THE EFFECT OF HYDROGEN OF THE TITANIUM  
 ALUMINADES  
*Period* *Obligations*  
 07/27/1990-07/31/1992 FY93: \$0 TOTAL: \$72,911  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 F H FROES ARC/H G NELSON 47-Materials Engr

**NCA 2-705 University of Idaho 3716**  
 RE-ANALYSIS OF THE GREENHOUSE EFFECT ON VENUS  
*Period* *Obligations*  
 04/07/1992-11/30/1992 FY93: \$0 TOTAL: \$10,727  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 D H ATKINSON ARC/J B POLLACK 31-Atmos Sci

**NCA 2-794 University of Idaho 3717**  
 DOPPLER WIND MEASUREMENTS OF OUTER PLANET ZONAL WI  
 ND PROFILES  
*Period* *Obligations*  
 02/16/1993-12/31/1993 FY93: \$6,060 TOTAL: \$6,060  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 D H ATKINSON ARC/J B POLLACK 11-Astronomy

**NCA 2-795 University of Idaho 3718**  
 VENUS RADIATIVE TRANSFER ANALYSIS  
*Period* *Obligations*  
 02/23/1993-03/31/1993 FY93: \$16,919 TOTAL: \$16,919  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 D H ATKINSON ARC/J B POLLACK 31-Atmos Sci

**NGT 00-010-003 University of Idaho 3719**  
 IDAHO STAR (STUDENT TEAMS FOR AEROSPACE RESEARCH)  
*Period* *Obligations*  
 06/16/1993-03/31/1995 FY93: \$82,500 TOTAL: \$82,500  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 D H ATKINSON HQ/D V GALLAWAY 41-Aero Engr

**NGT 00-040-038 University of Idaho 3720**  
 NGT-40038/UNIV IDAHO/NAT'L SPACE GRANT COLLEGE AND  
 FELLOWSHIP PROGRAM  
*Period* *Obligations*  
 05/29/1991-02/28/1994 FY93: \$170,000 TOTAL: \$490,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 T ARMSTRONG HQ/L KEFFER 99-Multi-Discip

## ILLINOIS

**NGT 00-030-011 Chicago State University 3721**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period* *Obligations*  
 10/25/1990-08/31/1994 FY93: \$0 TOTAL: \$66,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 B J SODEN HQ/G ASRAR 31-Atmos Sci

**NAG 8-224 Illinois Benedictine College 3722**  
 JOVE  
*Period* *Obligations*  
 02/03/1992-07/15/1994 FY93: \$37,319 TOTAL: \$85,785  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 D NOHL MSFC/F SIX 29-Math/Cmputer,NEC  
 T WANGLER

**NAG 1-1532 Illinois Institute of Technology 3723**  
 EXPANDING FLOW DIAGNOSTIC CAPABILITIES  
*Period* *Obligations*  
 07/19/1993-07/18/1994 FY93: \$25,602 TOTAL: \$25,602  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 C E WARK LARC/M J WALSH 41-Aero Engr

**NAG 3-1519 Illinois Institute of Technology 3724**  
 EFFECT OF MILD PRESSURE GRADIENTS ON TUNED AND DET  
 UNED SUBHARMONIC 3-D MODE GROWTH IN 2-D BOUNDARY  
*Period* *Obligations*  
 09/01/1993-10/31/1994 FY93: \$77,838 TOTAL: \$77,838  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 T C CORKE LERC/R R MANKBADI 41-Aero Engr

**NCC 1-167 Illinois Institute of Technology 3725**  
 CONTROLLED EXPERIMENTS ON INSTABILITIES AND TRANSITION  
 TO TURBULENCE ON CONES AT MACH 3.5 AND 8  
*Period* *Obligations*  
 08/04/1992-09/30/1993 FY93: \$57,164 TOTAL: \$117,647  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 T C CORKE LARC/S P WILKINSON 41-Aero Engr

**NGT 00-090-076 Illinois Institute of Technology 3726**  
 GSRP/UMF  
*Period* *Obligations*  
 09/24/1992-08/14/1994 FY93: \$12,000 TOTAL: \$24,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 J ORNELAS HQ/D RUSSELL 99-Multi-Discip

**NGT 00-090-077 Illinois Institute of Technology 3727**  
 GRADUATE STUDENT RESEARCHERS PROGRAM/UMF  
*Period* *Obligations*  
 09/17/1992-08/14/1994 FY93: \$12,000 TOTAL: \$24,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 J ORNELAS HQ/D RUSSELL 99-Multi-Discip

# **NASA'S UNIVERSITY PROGRAM** **ILLINOIS (Continued)**

**NGT 00-090-078 Illinois Institute of Technology 3728**  
 UNDERGRADUATE STUDENT RESEARCHERS PROGRAM (UMF)  
*Period Obligations*  
 09/26/1992-08/14/1994 FY93: \$24,000 TOTAL: \$24,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J ORNELAS HQ/D RUSSELL 99-Multi-Discip

**NGT 00-090-079 Illinois Institute of Technology 3729**  
 UNDERGRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 10/09/1992-08/14/1994 FY93: \$24,000 TOTAL: \$24,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J ORNELAS HQ/D RUSSELL 99-Multi-Discip

**NGT 00-090-146 Illinois Institute of Technology 3730**  
 UNDERGRADUATE STUDENT RESEARCHERS PROGRAM (UMF)  
*Period Obligations*  
 09/26/1992-08/14/1994 FY93: \$24,000 TOTAL: \$24,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J ORNELAS HQ/D K RUSSELL 99-Multi-Discip

**NGT 00-090-179 Illinois Institute of Technology 3731**  
 UNDERGRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 08/27/1993-08/14/1994 FY93: \$12,000 TOTAL: \$12,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J ORNELAS HQ/D RUSSELL 99-Multi-Discip

**NAG 8-268 Illinois Wesleyan University 3732**  
 JOVE  
*Period Obligations*  
 02/02/1993-05/31/1994 FY93: \$54,000 TOTAL: \$54,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 U MSFC/F SIX 99-Multi-Discip

**NAG 1-1206 Northwestern University 3733**  
 FRACTURE PROPAGATION IN COMPOSITES BY COUPLED FEM/ BEM  
 SPECTRAL METHODS D  
*Period Obligations*  
 12/03/1990-11/30/1992 FY93: \$1 TOTAL: \$143,197  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 T BELYTSCHKO LARC/J T WANG 42-Astro Engr  
 ....D D DAVIS

**NAG 1-1343 Northwestern University 3734**  
 QUALITATIVE MODELING FOR EXPLANATION GENERATION AND  
 REASONING ABOUT PROCED. IN CIVILIAN AVIATION - FDP  
*Period Obligations*  
 09/27/1991-08/31/1994 FY93: \$57,140 TOTAL: \$207,116  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 K D FORBUS LARC/K H ABBOTT 22-Computer Science

**NAG 2-774 Northwestern University 3735**  
 EFFECTS OF BRIEF CHANGES IN THE GRAVITY FIELD ON THE  
 CIRCADIAN CLOCK OF MAMMALS  
*Period Obligations*  
 03/30/1992-12/31/1993 FY93: \$5,000 TOTAL: \$67,780  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 F W TUREK ARC/C E WADE 56-Medical Sciences  
 O VAN REETH

**NAG 2-846 Northwestern University 3736**  
 ADAPTIVE LOAD BALANCING AND DATA PLACEMENT IN DISK ARRAYS  
*Period Obligations*  
 06/10/1993-09/14/1993 FY93: \$32,548 TOTAL: \$32,548  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 P SCHEUERMANN ARC/J R LEKASHMAN 22-Computer Science

**NAG 3-747 Northwestern University 3737**  
 THEORY OF SOLIDISCATION  
*Period Obligations*  
 10/15/1986-11/30/1993 FY93: \$120,000 TOTAL: \$1,005,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S H DAVIS LERC/A CHAIT 47-Materials Engr

**NAG 3-950 Northwestern University 3738**  
 CHARACTERIZATION OF METAL MATRIX COMPOSITES  
*Period Obligations*  
 11/30/1988-03/31/1993 FY93: \$0 TOTAL: \$426,379  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 I M DANIEL LERC/C C CHAMIS 41-Aero Engr

**NAG 3-1405 Northwestern University 3739**  
 INTERACTIONS BETWEEN SOLIDIFICATION AND COMPOSITIONAL  
 CONVECTION IN ALLOYS  
*Period Obligations*  
 12/30/1992-12/31/1993 FY93: \$80,000 TOTAL: \$80,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M G WORSTER LERC/A CHAIT 47-Materials Engr  
 S H DAVIS ....M YAO

**NAG 3-1417 Northwestern University 3740**  
 MICROGRAVITY MATERIALS SCIENCE: RESEARCH AND FLIGHT  
 EXPERIMENT OPPORTUNITIES  
*Period Obligations*  
 12/15/1992-12/14/1993 FY93: \$160,000 TOTAL: \$160,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 P W VORHEES LERC/T K GLASGOW 47-Materials Engr  
 ....R ASTHANA

**NAG 5-181 Northwestern University 3741**  
 RESEARCH RELATIVE TO ELECTROFORMED X RAY MIRRORS  
*Period Obligations*  
 05/15/1981-04/30/1993 FY93: \$0 TOTAL: \$802,337  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M P ULMER GSFC/L J EARLY 11-Astronomy  
 ....R H PLESS

**NAG 5-885 Northwestern University 3742**  
 INVESTIGATIONS OF REGIONAL LITHOSPHERIC DEFORMATION AND  
 CONTEMPORARY PLATE MOTIONS  
*Period Obligations*  
 03/15/1987-12/31/1991 FY93: \$0 TOTAL: \$418,066  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S A STEIN GSFC/H V FREY 32-Geological Sci  
 R G GORDON  
 D M JURDY



**NASA'S UNIVERSITY PROGRAM**  
**ILLINOIS (Continued)**

<b>NAG 5-1633</b>			
<b>Northwestern University</b>		<b>3743</b>	
AN X-RAY SEARCH FOR DISTANT RICH CLUSTERS OF GALAXIES: CANDIDATES BASED ON RADIO AND OPTICAL TECHNI			
<i>Period</i>		<i>Obligations</i>	
06/13/1991-12/31/1992	FY93: \$0		TOTAL: \$37,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>		<i>CASE Category</i>
M P ULMER	GSFC/R PETRE		11-Astronomy
<b>NAG 5-1779</b>			
<b>Northwestern University</b>		<b>3744</b>	
COMPLEX ZWO ABSORBERS: HIGH-REDSHIFT CLUSTERS OF GALAXIES			
<i>Period</i>		<i>Obligations</i>	
09/10/1991-09/14/1993	FY93: \$15,000		TOTAL: \$30,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>		<i>CASE Category</i>
D M MEYER	GSFC/R PETRE		11-Astronomy
<b>NAG 5-1801</b>			
<b>Northwestern University</b>		<b>3745</b>	
THE STRUCTURE OF INTERSTELLAR CLOUDS AT THE SMALLEST SCALES			
<i>Period</i>		<i>Obligations</i>	
09/13/1991-01/31/1994	FY93: \$5,280		TOTAL: \$31,280
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>		<i>CASE Category</i>
D M MAYER	GSFC/D WEST		11-Astronomy
<b>NAG 5-1944</b>			
<b>Northwestern University</b>		<b>3746</b>	
PLATE MOTION, REGIONAL DEFORMATION AND TIME VARIATION OF PLATE MOTION FROM STUDIES INTEGRATING...			
<i>Period</i>		<i>Obligations</i>	
03/16/1992-03/31/1993	FY93: \$72,000		TOTAL: \$142,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>		<i>CASE Category</i>
R G GORDON	GSFC/B G BILLS		32-Geological Sci
<b>NAG 5-2003</b>			
<b>Northwestern University</b>		<b>3747</b>	
GPS GEODETIC MONITORING OF SOUTH AMERICA-NAZCA CONVERGENCE			
<i>Period</i>		<i>Obligations</i>	
07/01/1992-02/28/1994	FY93: \$20,000		TOTAL: \$40,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>		<i>CASE Category</i>
S A STEIN	GSFC/B G BILLS		32-Geological Sci
<b>NAG 5-2105</b>			
<b>Northwestern University</b>		<b>3748</b>	
OBSERVATIONS OF BRIGHT HH OBJECTS IN M42			
<i>Period</i>		<i>Obligations</i>	
10/08/1992-01/31/1994	FY93: \$10,940		TOTAL: \$10,940
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>		<i>CASE Category</i>
F YUSEF-ZADEH	GSFC/D WEST		11-Astronomy
<b>NAG 8-144</b>			
<b>Northwestern University</b>		<b>3749</b>	
RESISTANT BEARING STEELS			
<i>Period</i>		<i>Obligations</i>	
02/02/1990-12/25/1992	FY93: \$0		TOTAL: \$432,606
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>		<i>CASE Category</i>
G B OLSON	MSFC/R L THOM		47-Materials Engr
J R WEERTMAN	....M A BAKER		
M E FINE			
<b>NAG 8-769</b>			
<b>Northwestern University</b>		<b>3750</b>	
COARSENING IN SOLID- LIQUID MIXTURES			
<i>Period</i>		<i>Obligations</i>	
04/11/1989-04/30/1994	FY93: \$0		TOTAL: \$494,017
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>		<i>CASE Category</i>
P W VOORHEES	MSFC/D A FRAZIER		47-Materials Engr
S C HARDY			
<b>NAG 9-475</b>			
<b>Northwestern University</b>		<b>3751</b>	
INTERFACE ISSUES IN QUALITATIVE MODELING FOR SPACE SYSTEM ENGINEERING			
<i>Period</i>		<i>Obligations</i>	
09/28/1990-03/01/1994	FY93: \$55,912		TOTAL: \$197,349
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>		<i>CASE Category</i>
K FORBUS	JSC/J MALIN		22-Computer Science
<b>NAGW 2522</b>			
<b>Northwestern University</b>		<b>3752</b>	
STRAIN ACCUMULATION MONITORING IN THE NEW MADRID SEISMIC ZONE USING THE GLOBAL POSITIONING SYSTEM			
<i>Period</i>		<i>Obligations</i>	
07/18/1991-06/14/1993	FY93: \$0		TOTAL: \$59,517
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>		<i>CASE Category</i>
S STEIN	HQ/M BALTUCK		32-Geological Sci
	....B J MALCOLM		
<b>NAGW 2526</b>			
<b>Northwestern University</b>		<b>3753</b>	
THEORETICAL STUDIES OF HIGH ENERGY TRANSIENTS			
<i>Period</i>		<i>Obligations</i>	
05/29/1991-12/31/1993	FY93: \$64,000		TOTAL: \$181,519
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>		<i>CASE Category</i>
R E TAAM	HQ/G S KUTTER		11-Astronomy
	....G R RIEGLER		
<b>NAGW 2695</b>			
<b>Northwestern University</b>		<b>3754</b>	
CLIMATE STABILITY: THE ROLE OF THE HYDROLOGICAL CYCLE AND THE THERMOHALINE CIRCULATION			
<i>Period</i>		<i>Obligations</i>	
09/09/1991-12/31/1993	FY93: \$38,885		TOTAL: \$94,634
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>		<i>CASE Category</i>
G E BIRCHFIELD	HQ/R H THOMAS		39-Env Sci, NEC
	....R A SCHIFFER		
<b>NAGW 2859</b>			
<b>Northwestern University</b>		<b>3755</b>	
NAGW-2859/NORTHWESTERN UNIV/MULTILAYERED SUPERCONDUCTING TUNNEL JUNCTIONS FOR USE IN ASTROPHYSICAL			
<i>Period</i>		<i>Obligations</i>	
01/31/1992-02/15/1993	FY93: \$185,353		TOTAL: \$364,005
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>		<i>CASE Category</i>
J B KETTERSON	HQ/J K ALEXANDER		11-Astronomy
	....D A HOLLAND		
<b>NAGW 2935</b>			
<b>Northwestern University</b>		<b>3756</b>	
PHYSICS AND INTERPRETATION OF HIGH LUMINOSITY SOURCES			
<i>Period</i>		<i>Obligations</i>	
02/27/1992-12/31/1993	FY93: \$78,000		TOTAL: \$156,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>		<i>CASE Category</i>
G S MILLER	HQ/L J KALUZIENSKI		11-Astronomy
R E TAAM	....A N BUNNER		
<b>NAGW 2936</b>			
<b>Northwestern University</b>		<b>3757</b>	
GRAVITATIONAL RADIATION SOURCES			
<i>Period</i>		<i>Obligations</i>	
02/27/1992-12/31/1993	FY93: \$44,999		TOTAL: \$71,994
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>		<i>CASE Category</i>
L S FINN	HQ/R STACHNIK		11-Astronomy
	....E J WEILER		

**NASA'S UNIVERSITY PROGRAM**  
**ILLINOIS (Continued)**

**NAGW 3615 Northwestern University 3758**  
 MECHANICAL MODULATION OF STRIATED MUSCLE PHENOTYPE  
*Period Obligations*  
 05/26/1993-05/31/1994 FY93: \$59,735 TOTAL: \$59,735  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R S DECKER HQ/T W HALSTEAD 51-Biological Sci

**NCA 2-772 Northwestern University 3765**  
 ADVANCED CRAY-BASED MASSIVELY PARALLEL SOFTWARE FO R  
 FD-TD MODELING OF RADAR CROSS SECTION  
*Period Obligations*  
 12/02/1992-11/30/1994 FY93: \$39,998 TOTAL: \$39,998  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A TAFLOVE ARC/P GOORJIAN 41-Aero Engr

**NAGW 3693 Northwestern University 3759**  
 ANALYSIS OF DISTRIBUTION AND MORPHOLOGY OF MAJOR F  
 EATURES FOR AN UNDERSTANDING OF THE TECTONICS  
*Period Obligations*  
 08/03/1993-05/31/1994 FY93: \$30,000 TOTAL: \$30,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D M JURDY HQ/J T BERGSTALH 32-Geological Sci

**NCA 2-773 Northwestern University 3766**  
 FD-TD COMPUTATIONAL STUDYOF THE RADAR CROSS SECTIO N  
 OF ENTIRE FIGHTER-SIZED AIRCRAFT IN THE RANGE..  
*Period Obligations*  
 12/02/1992-11/30/1994 FY93: \$30,000 TOTAL: \$30,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A TAFLOVE ARC/P GOORJIAN 41-Aero Engr

**NAS 1-18877 Northwestern University 3760**  
 CHEMICAL-VAPOR-INFILTRATION SYSTEM  
*Period Obligations*  
 03/10/1989-09/11/1992 FY93: \$0 TOTAL: \$319,534  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 UNAVAILABLE LARC/D BARRETT 47-Materials Engr

**NCC 2-773 Northwestern University 3767**  
 ASSESSING THE IMPACT OF PILOT COMMUNICATION OF PER  
 FORMANCE; STATUS, ROLES, AND NORMAL VS NONNORMAL...  
*Period Obligations*  
 10/20/1992-08/31/1993 FY93: \$39,959 TOTAL: \$39,959  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M T PALMER ARC/B G KANKI 62-Social Aspects  
 ....J M ORASANU

**NAS 3-26810 Northwestern University 3761**  
 APPLICATION OF DIFFUSION BARRIER COATINGS TO CERAM IC  
 FIBER FOR NICKEL ALUMINIDE COMPOSTIES  
*Period Obligations*  
 12/10/1992-12/10/1993 FY93: \$149,909 TOTAL: \$149,909  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D E BOSS LERC/R R BOWMAN 47-Materials Engr

**NCC 2-774 Northwestern University 3768**  
 THEORETICAL STUDIES OF RATE COEFFICIENTS FOR GAS P HASE  
 REACTIONS INVOLVED IN THE COMBUSTION OF.....  
*Period Obligations*  
 10/20/1990-10/31/1993 FY93: \$46,145 TOTAL: \$46,145  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 G C SCHATZ ARC/S R LANGHOFF 12-Chemistry

**NAS 8-37686 Northwestern University 3762**  
 APPLICATION OF HARD COATINGS TO SUBSTRATES AT LOW  
 TEMPERATURES  
*Period Obligations*  
 04/24/1989-11/30/1992 FY93: \$0 TOTAL: \$284,625  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 W D SPROUL MSFC/R L THOM 47-Materials Engr  
 ....T R JETT

**NGT 00-050-571 Northwestern University 3769**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 07/24/1990-08/31/1993 FY93: \$0 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S STEIN HQ/F C OWENS 32-Geological Sci

**NCA 2-562 Northwestern University 3763**  
 FD-TD COMPUTATIONAL STUDY OF THE RADAR CROSS SECTION  
 OF WIDE-DYNAMIC RANGE 3-D TARGETS.  
*Period Obligations*  
 10/04/1990-11/30/1992 FY93: \$0 TOTAL: \$59,998  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A TAFLOVE ARC/P GOORJIAN 41-Aero Engr

**NGT 00-050-769 Northwestern University 3770**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 06/25/1991-06/30/1993 FY93: \$0 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S H DAVIS HQ/F C OWENS 21-Mathematics

**NCA 2-727 Northwestern University 3764**  
 COMPUTATIONAL MODELING AND DESIGN OF SUB-MILLIMETE R  
 SCALE FEMTOSECOND ALL-OPTICAL SWITCHES AND LOGI  
*Period Obligations*  
 06/29/1992-08/31/1993 FY93: \$0 TOTAL: \$12,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A TAFLOVE ARC/P GOORJIAN 29-Math/Cmputer,NEC

**NGT 00-050-781 Northwestern University 3771**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 07/01/1991-09/30/1993 FY93: \$0 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S H DAVIS HQ/F C OWENS 21-Mathematics

**NGT 00-050-902 Northwestern University 3772**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 05/29/1992-06/30/1994 FY93: \$22,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 B J MATROWSKI HQ/J ALEXANDER 21-Mathematics  
 A BAYLISS

**NASA'S UNIVERSITY PROGRAM**  
**ILLINOIS (Continued)**

**NGT 00-050-907 Northwestern University 3773**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 05/29/1992-06/30/1994 FY93: \$22,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J B KETTERSON HQ/J ALEXANDER 13-Physics

**NGT 00-051-083 Northwestern University 3774**  
 GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 06/01/1993-06/30/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 B CARPENTER HQ/B CARPENTER 21-Mathematics

**NGT 00-070-355 Northwestern University 3775**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
 MINORITY FOCUS PROGRAM  
*Period Obligations*  
 09/02/1993-08/31/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 T MARKS HQ/D K RUSSELL 12-Chemistry

**NAG 8-267 Parks College of St. Louis University 3776**  
 JOVE  
*Period Obligations*  
 02/02/1993-05/31/1994 FY93: \$59,000 TOTAL: \$59,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 C E MONFORT MSFC/F SIX 99-Multi-Discip

**NAG 5-1972 Southern Illinois University - Carbondale 3777**  
 IMPROVED DETERMINATION OF VECTOR LITHOSPHERIC MAGNETIC  
 ANOMALIES FROM MAGSAT DATA  
*Period Obligations*  
 05/04/1992-01/31/1993 FY93: \$0 TOTAL: \$18,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D RAVAT GSFC/R A LANGE 32-Geological Sci

**NAGW 2267 Southern Illinois University - Carbondale 3778**  
 INFORMED THERMAL PROTEINS  
*Period Obligations*  
 09/28/1990-08/31/1992 FY93: \$0 TOTAL: \$7,908  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S W FOX HQ/J D RUMMEL 12-Chemistry

**NCA 2-718 Southern Illinois University - Carbondale 3779**  
 HIGH SPEED GAS CHROMATOGRAPHY OF VOLATILE SUBSTANCES  
*Period Obligations*  
 05/21/1992-06/06/1994 FY93: \$18,245 TOTAL: \$46,245  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J B PHILLIPS ARC/J R VALENTIN 12-Chemistry

**NGT 00-070-233 Southern Illinois University - Carbondale 3780**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
 MINORITY FOCUS PROGRAM  
*Period Obligations*  
 07/15/1991-08/14/1994 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J B PHILLIPS HQ/F C OWENS 12-Chemistry

**NAG 2-380 University of Chicago 3781**  
 DATA REDUCTIONS AND ANALYSIS FOR THE UNIV OF  
 CHICAGO CHARGED PARTICLE INSTRUMENT ON THE PIONEER 10  
 AND  
*Period Obligations*  
 11/01/1987-10/31/1994 FY93: \$922,057 TOTAL: \$3,741,753  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J A SIMPSON ARC/L E LASHER 13-Physics  
 ....R A CRAIG

**NAG 2-765 University of Chicago 3782**  
 SEARCH FOR GAMMA RAYS FROM THE DECAY OF SN87A NEUT  
 RINOS  
*Period Obligations*  
 03/18/1992-02/28/1993 FY93: \$0 TOTAL: \$19,064  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M S TURNER ARC/L E LASHER 11-Astronomy  
 ....R O FIMMEL

**NAG 2-785 University of Chicago 3783**  
 PHYSIOLOGY OF THE VESTIBULAR SYSTEM  
*Period Obligations*  
 06/04/1992-03/31/1994 FY93: \$0 TOTAL: \$58,200  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J M GOLDBERG ARC/M L CORCORAN 51-Biological Sci  
 ....C E WADE

**NAG 3-1263 University of Chicago 3784**  
 COMPUTERIZED GENERATION OF SURFACES BY MULTI-DEGREE  
 OF-FREEDOM NUMERICALLY CONTROLLED MACHINES  
*Period Obligations*  
 03/26/1991-08/31/1993 FY93: \$0 TOTAL: \$130,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 F L LITVIN LERC/R F HANDSCHUH 46-Mech Engr  
 ....J J COY

**NAG 5-308 University of Chicago 3785**  
 COSMIC RAY COMPOSITION INVESTIGATIONS  
*Period Obligations*  
 04/01/1983-11/30/1992 FY93: \$0 TOTAL: \$1,019,189  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M E WERDENBOCK GSFC/G BULLOCK 13-Physics  
 ....J P CORRIGAN

**NAG 5-706 University of Chicago 3786**  
 ASTROPHYSICAL STUDIES OF IMP SATELLITE DATA  
*Period Obligations*  
 10/01/1985-09/30/1993 FY93: \$125,000 TOTAL: \$1,061,719  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J A SIMPSON GSFC/G BULLOCK 11-Astronomy  
 M G MUNOI

**NAG 5-873 University of Chicago 3787**  
 THE DETECTION AND INTERPRETATION OF LONG-TERM  
 ATMOSPHERIC CHANGE  
*Period Obligations*  
 02/15/1987-12/31/1993 FY93: \$50,907 TOTAL: \$300,385  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J E FREDERICK GSFC/E HILSENATH 31-Atmos Sci

**NASA'S UNIVERSITY PROGRAM  
ILLINOIS (Continued)**

**NAG 5-1056 University of Chicago 3788**  
CLOUD RADIATION INTERACTIONS INVOLVING ICE CLOUDS AND CUMULUS CONVECTION  
*Period Obligations*  
07/01/1988-06/30/1992 FY93: \$0 TOTAL: \$221,558  
*Prin. Invest. NASA Tech. Officer CASE Category*  
L J DONNER GSFC/H M HELFAND 31-Atmos Sci

**NAG 5-1086 University of Chicago 3789**  
COSMIC RAY ELECTRON EXPERIMENT STUDIES ISEE  
*Period Obligations*  
10/01/1988-10/31/1992 FY93: \$0 TOTAL: \$504,700  
*Prin. Invest. NASA Tech. Officer CASE Category*  
P O MEYER GSFC/G BULLOCK 11-Astronomy

**NAG 5-1434 University of Chicago 3790**  
UV EXTINCTION IN HIGH LATITUDE CLOUDS  
*Period Obligations*  
08/14/1990-08/31/1993 FY93: \$5,000 TOTAL: \$24,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D E WELTY GSFC/D WEST 11-Astronomy

**NAG 5-1454 University of Chicago 3791**  
ANALYZING/INTERPRETING GAMMA-RAY BURST SPECTRA  
*Period Obligations*  
08/27/1990-06/30/1994 FY93: \$82,682 TOTAL: \$139,470  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D Q LAMB GSFC/J P NORRIS 11-Astronomy  
...../D A KNIFFEN

**NAG 5-1485 University of Chicago 3792**  
MAGNETIC FIELD DYNAMICS IN THE SOLAR INTERIOR AND OUTER SOLAR ATMOSPHERE  
*Period Obligations*  
11/26/1990-03/31/1994 FY93: \$280,000 TOTAL: \$820,276  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R ROSNER GSFC/T J BIRMINGHAM 13-Physics

**NAG 5-1596 University of Chicago 3793**  
STUDIES OF X-RAY EMISSION FROM M STARS IN THE PLEIADES  
*Period Obligations*  
05/10/1991-02/28/1993 FY93: \$0 TOTAL: \$40,016  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R ROSNER GSFC/R PETRE 11-Astronomy

**NAG 5-1646 University of Chicago 3794**  
TIMING STUDY OF THE MAGNETIC CATACTYSMIC BINARY; S TUDY OF THE SUSPECT MAGNETIC CATACTYSMIC BINARY..  
*Period Obligations*  
06/28/1991-06/30/1993 FY93: \$0 TOTAL: \$23,500  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D Q LAMB GSFC/R PETRE 11-Astronomy

**NAG 5-1650 University of Chicago 3795**  
NEUTRAL ATOMIC ABSORPTION LINES AND FAR-UV EXTINGT ION: IMPLICATIONS DEPLETION; GRAIN PARAMETERS, ..  
*Period Obligations*  
06/24/1991-06/30/1993 FY93: \$0 TOTAL: \$24,700  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D E WELTY GSFC/D WEST 11-Astronomy

**NAG 5-1757 University of Chicago 3796**  
THEORETICAL INVESTIGATIONS OF ACTIVE GALACTIC NUCL EI  
*Period Obligations*  
09/16/1991-09/30/1993 FY93: \$0 TOTAL: \$104,609  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D Q LAMB GSFC/J P NORRIS 11-Astronomy  
M ZBYSZEWSKA ....C A GEHRELS

**NAG 5-1856 University of Chicago 3797**  
X-RAY EMISSION AND SPECTRA OF 'HYBRID' GIANT STARS  
*Period Obligations*  
01/09/1992-10/31/1994 FY93: \$0 TOTAL: \$39,242  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R ROSNER GSFC/R PETRE 11-Astronomy

**NAG 5-1986 University of Chicago 3798**  
APPLICATION OF TOMS MEASUREMENTS TO UV STUDIES  
*Period Obligations*  
05/27/1992-12/31/1994 FY93: \$25,000 TOTAL: \$50,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J E FREDERICK GSFC/A L KRUEGER 31-Atmos Sci  
...../P K BHARTIA

**NAG 5-2081 University of Chicago 3799**  
GAMMA RAYS FROM CLASSICAL NOVAE  
*Period Obligations*  
08/25/1992-09/30/1993 FY93: \$39,000 TOTAL: \$65,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J W TRURAN GSFC/J P NORRIS 11-Astronomy  
...../N WHITE

**NAG 5-2099 University of Chicago 3800**  
HIGH ENERGY EMISSION FROM COMPACT OBJECTS  
*Period Obligations*  
09/15/1992-09/14/1993 FY93: \$49,684 TOTAL: \$49,684  
*Prin. Invest. NASA Tech. Officer CASE Category*  
P COPPI GSFC/J P NORRIS 11-Astronomy  
...../N WHITE

**NAG 5-2218 University of Chicago 3801**  
CONVECTIVE TURBULENCE AND MIXING IN ASTROPHYSICS  
*Period Obligations*  
02/23/1993-11/30/1993 FY93: \$325,000 TOTAL: \$325,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R ROSNER GSFC/J R FISCHER 13-Physics  
N BRUMMELL  
F CATTANEO

**NAG 5-2265 University of Chicago 3802**  
EUV SPECTROSCOPY OF BL LAC OBJECTS  
*Period Obligations*  
05/04/1993-05/14/1994 FY93: \$34,952 TOTAL: \$34,952  
*Prin. Invest. NASA Tech. Officer CASE Category*  
A KONIGI GSFC/D WEST 11-Astronomy

**NAG 5-2307 University of Chicago 3803**  
RESTORATION AND ARCHIVING OF THE DATA FROM EXPERIM ENT MEH ON THE SPACECRAFT ISEE-3/ICE  
*Period Obligations*  
06/24/1993-07/14/1994 FY93: \$55,000 TOTAL: \$55,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
P MEYER GSFC/G BULLOCK 19-Phys Sci, NEC

**NASA'S UNIVERSITY PROGRAM**  
**ILLINOIS (Continued)**

**NAG 8-886 University of Chicago 3804**  
 CLIMATIC VARIATION OF STORMS  
*Period Obligations*  
 07/16/1991-07/31/1994 FY93: \$75,000 TOTAL: \$195,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 T J FUJITA MSFC/S J GOODMAN 31-Atmos Sci  
 ....J E ARNOLD

**NAGW 1284 University of Chicago 3812**  
 THEORETICAL STUDIES IN HIGH ENERGY  
*Period Obligations*  
 04/18/1988-12/31/1993 FY93: \$32,000 TOTAL: \$258,231  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D Q LAMB HQ/G C CLAYTON 13-Physics  
 ....W V JONES

**NAG 9-47 University of Chicago 3805**  
 CHEM PLANETS + METEORITES  
*Period Obligations*  
 02/01/1983-02/01/1994 FY93: \$0 TOTAL: \$800,609  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J V SMITH JSC/I D BROWNE 13-Physics  
 I M STEELE

**NAGW 1321 University of Chicago 3813**  
 FUNDAMENTAL STUDIES  
*Period Obligations*  
 06/20/1988-01/31/1994 FY93: \$51,000 TOTAL: \$297,472  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D N SCHRAMM HQ/G C CLAYTON 11-Astronomy

**NAG 9-51 University of Chicago 3806**  
 ISOTOPE STUDIES MOON + METEORITES  
*Period Obligations*  
 02/01/1983-12/01/1993 FY93: \$0 TOTAL: \$2,084,758  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R N CLAYTON JSC/I D BROWNE 11-Astronomy  
 T K MAYEDA  
 I D HUTCHEON

**NAGW 1475 University of Chicago 3814**  
 ACCURATE GROUND BASED CALIBRATION OF HRS-HST  
*Period Obligations*  
 10/25/1988-02/28/1994 FY93: \$34,000 TOTAL: \$183,326  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 L M HOBBS HQ/G C CLAYTON 13-Physics

**NAG 9-52 University of Chicago 3807**  
 METEORITES, AGE, ORIGIN, + COMPOSITION  
*Period Obligations*  
 03/01/1983-12/01/1993 FY93: \$0 TOTAL: \$2,323,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 E ANDERS JSC/I D BROWNE 32-Geological Sci  
 R S LEWIS

**NAGW 1508 University of Chicago 3815**  
 THE HISTORY OF LIFE IN A COSMIC ENVIRONMENT  
*Period Obligations*  
 11/17/1988-09/30/1993 FY93: \$20,223 TOTAL: \$259,809  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D M RAUP HQ/J D RUMMEL 32-Geological Sci

**NAG 9-54 University of Chicago 3808**  
 CHEM ASPECTS ORIGIN SOLAR SYSTEM  
*Period Obligations*  
 04/01/1983-12/01/1993 FY93: \$0 TOTAL: \$1,727,326  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 L GROSSMAN JSC/I D BROWNE 32-Geological Sci

**NAGW 1527 University of Chicago 3816**  
 THE FOSSIL RECORD OF EVOLUTION ANALYSIS OF EXTINCTION  
*Period Obligations*  
 12/06/1988-11/14/1992 FY93: \$0 TOTAL: \$159,891  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D M RAUP HQ/M MEYER 32-Geological Sci

**NAG 9-106 University of Chicago 3809**  
 DEVELOPMENT/X-RAY FLOURESCENCE FACILITY  
*Period Obligations*  
 06/01/1985-06/01/1994 FY93: \$0 TOTAL: \$855,579  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S R SUTTON JSC/I D BROWNE 59-Life Sci, NEC

**NAGW 1636 University of Chicago 3817**  
 HIGH ENERGY EMISSION FROM THE JETS IN ACTIVE GALACTIC NUCLEI  
*Period Obligations*  
 01/31/1989-01/31/1995 FY93: \$75,000 TOTAL: \$226,187  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A KONIGL HQ/L J KALUZIENSKI 11-Astronomy  
 ....A N BUNNER

**NAG 9-498 University of Chicago 3810**  
 TRACE ELEMENT AND ISOTOPE STUDIES IN OXIDE/PHOSPHATE/SILICATE INCLUSIONS OF ITON METEORITES  
*Period Obligations*  
 04/01/1991-04/01/1994 FY93: \$0 TOTAL: \$24,929  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 F J OLSEN JSC/I D BROWNE 19-Phys Sci, NEC

**NAGW 1685 University of Chicago 3818**  
 REMOTE SENSING DATA PROBLEMS  
*Period Obligations*  
 02/24/1989-09/30/1994 FY93: \$30,000 TOTAL: \$226,527  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R ROSNER HQ/J D BOHLIN 13-Physics  
 ....S KANE

**NAGW 830 University of Chicago 3811**  
 FUNDAMENTAL STUDIES IN HIGH ENERGY ASTROPHYSICS  
*Period Obligations*  
 10/01/1985-09/30/1993 FY93: \$100,000 TOTAL: \$740,105  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D Q LAMB JR HQ/L J KALUZIENSKI 11-Astronomy  
 ....A N BUNNER

**NAGW 1693 University of Chicago 3819**  
 THE FOSSIL RECORD OF EVOLUTION DATA ON DIVERSIFICATION  
*Period Obligations*  
 03/01/1989-01/31/1994 FY93: \$45,000 TOTAL: \$205,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J J SEPKOSKI HQ/J D RUMMEL 32-Geological Sci

**NASA'S UNIVERSITY PROGRAM**  
**ILLINOIS (Continued)**

**NAGW 1847**                      **University of Chicago**                      **3820**  
 FURTHER DEVELOPMENT OF ALPHA PARTICLE INSTRUMENT WITH ALPHA PROTON AND X-RAY MODES  
*Period*                                      *Obligations*  
 03/13/1990-09/30/1993                      FY93: \$207,791                      TOTAL: \$755,513  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 T ECONOMU                      HQ/P R MAHAFFY                      32-Geological Sci

**NAGW 2368**                      **University of Chicago**                      **3827**  
 POST-LAUNCH DATA ANALYSIS FOR THE COSMIC RAY ISOTOPE EXPERIMENT  
*Period*                                      *Obligations*  
 03/15/1991-09/30/1993                      FY93: \$224,685                      TOTAL: \$924,685  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 J A SIMPSON                      HQ/W V JONES                      13-Physics  
    ....J C LING

**NAGW 1981**                      **University of Chicago**                      **3821**  
 NOVEL DETECTORS FOR MEASUREMENTS OF COSMIC RAY ISOTOPES (H-NI) AND ELEMENTS (PT-U)  
*Period*                                      *Obligations*  
 04/30/1990-12/31/1992                      FY93: \$0                      TOTAL: \$500,000  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 J A SIMPSON                      HQ/W V JONES                      13-Physics  
    ....J C LING

**NAGW 2379**                      **University of Chicago**                      **3828**  
 ACCRETION AND OUTFLOW PHENOMENA YOUNG STELLAR OBJECTS  
*Period*                                      *Obligations*  
 03/18/1991-02/28/1994                      FY93: \$77,067                      TOTAL: \$220,172  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 A KOENIGL                      HQ/G S KUTTER                      11-Astronomy  
    ....G R RIEGLER

**NAGW 1982**                      **University of Chicago**                      **3822**  
 EXPERIMENTS IN HIGH ENERGY ASTROPHYSICS  
*Period*                                      *Obligations*  
 04/25/1990-10/31/1993                      FY93: \$200,000                      TOTAL: \$1,625,401  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 P MEYER                      HQ/W V JONES                      13-Physics  
    ....J C LING

**NAGW 2578**                      **University of Chicago**                      **3829**  
 MARS '94 PARTICIPATING SCIENTIST AND COINVESTIGATOR PROGRAM  
*Period*                                      *Obligations*  
 08/16/1991-10/31/1993                      FY93: \$160,443                      TOTAL: \$345,008  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 T ECONOMOU                      HQ/W L QUAIDE                      19-Phys Sci, NEC

**NAGW 1995**                      **University of Chicago**                      **3823**  
 STUDIES OF THE COSMIC RADIATION AT HIGH ENERGIES; HEAT AND HIGH ENERGY ANTIMATTER TELESCOPE  
*Period*                                      *Obligations*  
 02/26/1990-10/31/1993                      FY93: \$600,000                      TOTAL: \$2,045,000  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 D MULLER                      HQ/W V JONES                      13-Physics  
    ....J C LING

**NAGW 2588**                      **University of Chicago**                      **3830**  
 ICE-SHEET MODELING BY CONTROL METHODS  
*Period*                                      *Obligations*  
 08/26/1991-12/31/1993                      FY93: \$0                      TOTAL: \$62,067  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 D MACAYEAL                      HQ/R H THOMAS                      39-Env Sci, NEC  
    ....R A SCHIFFER

**NAGW 2057**                      **University of Chicago**                      **3824**  
 STATISTICAL ANALYSIS OF STRATOSPHERIC TEMPERATURE AND OZONE PROFILE DATA FOR TRENDS AND MODEL COMPARISON  
*Period*                                      *Obligations*  
 05/16/1990-06/30/1992                      FY93: \$0                      TOTAL: \$87,000  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 G C TIAO                      HQ/R D MCPETERS                      39-Env Sci, NEC  
    ....M J PRATHER

**NAGW 2610**                      **University of Chicago**                      **3831**  
 THE INTERSTELLAR CLOUD AROUND THE SOLAR SYSTEM  
*Period*                                      *Obligations*  
 08/20/1991-02/28/1994                      FY93: \$50,000                      TOTAL: \$150,000  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 P C FRISCH                      HQ/W V JONES                      11-Astronomy  
    ....J C LING

**NAGW 2122**                      **University of Chicago**                      **3825**  
 A THEORETICAL INVESTIGATION OF THE DYNAMICS OF THE SOLAR WIND AND MAGNETIC FIELDS  
*Period*                                      *Obligations*  
 05/22/1990-12/31/1993                      FY93: \$110,000                      TOTAL: \$601,299  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 E N PARKER                      HQ/J D BOHLIN                      13-Physics  
    ....S KANE

**NAGW 2959**                      **University of Chicago**                      **3832**  
 SPACE EXPLORERS OUTREACH PROGRAM  
*Period*                                      *Obligations*  
 03/03/1992-02/28/1993                      FY93: \$0                      TOTAL: \$4,800  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 D A HARPER                      HQ/L S LAPIANA                      11-Astronomy  
    ....C J PELLERIN

**NAGW 2272**                      **University of Chicago**                      **3826**  
 COLLABORATIVE RESEARCH OXYGEN ISOTOPIC HETEROGENEITY IN OLIVINE AND PYROXENE FROM ORDINARY CHONDRITES  
*Period*                                      *Obligations*  
 02/22/1991-10/31/1993                      FY93: \$24,451                      TOTAL: \$73,353  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 I M STEELE                      HQ/J A NUTH                      19-Phys Sci, NEC

**NAGW 3057**                      **University of Chicago**                      **3833**  
 DESIGN AND CONSTRUCTION OF AN ADIABATIC REFRIGERATOR AND BOLOMETER ARRAY  
*Period*                                      *Obligations*  
 04/24/1992-03/31/1994                      FY93: \$30,000                      TOTAL: \$84,686  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 R H HILDEBRAND                      HQ/L J CAROFF                      11-Astronomy

**NASA'S UNIVERSITY PROGRAM  
ILLINOIS (Continued)**

**NAGW 3069 University of Chicago 3834**  
STELLAR ORIGINS AND INTERSTELLAR CARRIERS OF NUCLE  
OSYNTHETIC ISOTOPIC ANOMALIES  
*Period Obligations*  
05/07/1992-03/31/1994 FY93: \$40,000 TOTAL: \$60,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R CLAYTON HQ/J A NUTH 19-Phys Sci, NEC

**NAGW 3078 University of Chicago 3835**  
NAGW-3078/UNIV CHICAGO/A SPACE DUST EXPERIMENT FOR  
MEASUREMENT OF THE DISTRIBUTION OF MAN-MADE  
*Period Obligations*  
05/26/1992-06/30/1994 FY93: \$0 TOTAL: \$200,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
A J TUZZOLINO HQ/H C BRINTON 31-Atmos Sci

**NAGW 3114 University of Chicago 3836**  
NAGW-3114/UNIV CHICAGO/STATISTICAL ANALYSIS OF STR  
ATOSPHERIC TEMPERATURE AND OZONE PROFILE DATA  
*Period Obligations*  
06/21/1992-06/30/1994 FY93: \$15,000 TOTAL: \$60,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
G C TIAO HQ/J A KAYE 31-Atmos Sci  
...../R E MURPHY

**NAGW 3212 University of Chicago 3837**  
NAGW-3212/UNIV CHICAGO/KINETICS OF VOLATILIZATION OF  
INTERSTELLAR GRAINS  
*Period Obligations*  
09/29/1992-06/30/1994 FY93: \$80,000 TOTAL: \$80,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
L GROSSMAN HQ/J A NUTH 19-Phys Sci, NEC

**NAGW 3252 University of Chicago 3838**  
NAGW-3252/UNIV CHICAGO/SPACE EXPLORERS OUTREACH PR  
OGRAM  
*Period Obligations*  
10/29/1992-07/31/1993 FY93: \$4,800 TOTAL: \$4,800  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D A HARPER HQ/L S LAPIANA 11-Astronomy  
...../G P NEWTON

**NAGW 3340 University of Chicago 3839**  
CHEMICAL ASPECTS OF THE ORIGIN OF THE SOLAR SYSTEM  
*Period Obligations*  
01/13/1993-11/30/1993 FY93: \$198,790 TOTAL: \$198,790  
*Prin. Invest. NASA Tech. Officer CASE Category*  
L GROSSMAN HQ/H C BRINTON 32-Geological Sci

**NAGW 3342 University of Chicago 3840**  
PRESOLAR GRAINS AND THE EARLY SOLAR SYSTEM  
*Period Obligations*  
01/15/1993-11/30/1993 FY93: \$152,384 TOTAL: \$152,384  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R LEWIS HQ/H C BRINTON 32-Geological Sci

**NAGW 3345 University of Chicago 3841**  
ISOTOPIC STUDIES OF THE MOON AND METEORITES  
*Period Obligations*  
01/15/1993-12/31/1993 FY93: \$236,250 TOTAL: \$236,250  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R N CLAYTON HQ/H C BRINTON 13-Physics

**NAGW 3384 University of Chicago 3842**  
REFRACTORY INCLUSIONS IN CARBONACEOUSCHONDRITES  
*Period Obligations*  
02/16/1993-02/28/1994 FY93: \$38,625 TOTAL: \$38,625  
*Prin. Invest. NASA Tech. Officer CASE Category*  
A DAVIS HQ/H C BRINTON 32-Geological Sci

**NAGW 3416 University of Chicago 3843**  
MINERALOGY AND CHEMISTRY OF PLANETS AND METEORITES  
*Period Obligations*  
03/09/1993-01/31/1994 FY93: \$84,460 TOTAL: \$84,460  
*Prin. Invest. NASA Tech. Officer CASE Category*  
I STEELE HQ/H C BRINTON 32-Geological Sci

**NAGW 3569 University of Chicago 3844**  
TRACE ELEMENT AND ISOTOPE STUDIES OF IRON METERITE S  
*Period Obligations*  
04/30/1993-03/31/1994 FY93: \$11,954 TOTAL: \$11,954  
*Prin. Invest. NASA Tech. Officer CASE Category*  
E OLSEN HQ/J BOYCE 31-Atmos Sci

**NAGW 3651 University of Chicago 3845**  
DEVELOPMENT OF X-RAY FLUORESCENCE AND X-RAY ABSORP  
TION SPECTROSCOPY FACILITY  
*Period Obligations*  
06/15/1993-03/31/1994 FY93: \$70,004 TOTAL: \$70,004  
*Prin. Invest. NASA Tech. Officer CASE Category*  
S SUTTON HQ/J BOYCE 32-Geological Sci

**NAS 1-18239 University of Chicago 3846**  
HALOGEN OCCULATION EXPERIMENT (HALOE) SCIENTIFIC  
SUPPORT  
*Period Obligations*  
02/20/1986-12/31/1995 FY93: \$40,000 TOTAL: \$139,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J E FREDERICK LARC/E M SULLIVAN 31-Atmos Sci  
...../J M RUSSELL III

**NAS 1-18385 University of Chicago 3847**  
ERBE SCIENCE INVESTIGATIONS  
*Period Obligations*  
09/30/1986-09/29/1993 FY93: \$0 TOTAL: \$684,145  
*Prin. Invest. NASA Tech. Officer CASE Category*  
V RAMANATHAN LARC/B R BARKSTROM 31-Atmos Sci

**NAS 5-30117 University of Chicago 3848**  
ENERGETIC HEAVY ION COMPOSITION COSMIC RAY ISOTOPE  
SUPPORT  
*Period Obligations*  
11/16/1987-07/31/1993 FY93: \$204,259 TOTAL: \$2,041,612  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J A SIMPSON GSFC/R O WALES 11-Astronomy  
K R PYLE  
M G MUNDZ

**NASA'S UNIVERSITY PROGRAM  
ILLINOIS (Continued)**

**NCC 2-265 University of Chicago 3849**  
NUMERICAL EXPERIMENTS ON THE DYNAMICS OF GALAXIES  
*Period Obligations*  
08/01/1983-05/31/1994 FY93: \$14,975 TOTAL: \$228,806  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R H MILLER ARC/B F SMITH 11-Astronomy  
...../P M CASSEN

**NCC 8-7 University of Chicago 3850**  
A SOUNDING ROCKET PROGRAM FOR THE STUDY OF HIGH ENERGY CORONAL PHENOMNA  
*Period Obligations*  
09/18/1990-12/01/1993 FY93: \$115,046 TOTAL: \$317,620  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R ROSNER MSFC/J M DAVIS 13-Physics  
J M DAVIS ...../E J REICHMANN

**NGR14-1227 University of Chicago 3851**  
NEW RESEARCH GRANT  
*Period Obligations*  
02/27/1973-09/30/1993 FY93: \$360,376 TOTAL: \$3,958,776  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D A HARPER JR ARC/C D LAUGHLIN 11-Astronomy

**NGT 00-050-449 University of Chicago 3852**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
07/28/1989-09/30/1992 FY93: \$0 TOTAL: \$62,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R C SRIVASTAVA HQ/F C OWENS 19-Phys Sci, NEC

**NGT 00-050-453 University of Chicago 3853**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
08/10/1989-06/30/1992 FY93: \$3,037 TOTAL: \$43,213  
*Prin. Invest. NASA Tech. Officer CASE Category*  
M S TURNER HQ/F C OWENS 13-Physics

**NGT 00-050-463 University of Chicago 3854**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
08/10/1989-06/30/1992 FY93: \$0 TOTAL: \$62,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D MULLER HQ/F C OWENS 49-Engr, NEC

**NGT 00-050-469 University of Chicago 3855**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
08/01/1989-06/30/1992 FY93: \$3,479 TOTAL: \$42,771  
*Prin. Invest. NASA Tech. Officer CASE Category*  
M S TURNER HQ/F C OWENS 13-Physics

**NGT 00-050-529 University of Chicago 3856**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
09/15/1989-06/30/1993 FY93: \$0 TOTAL: \$62,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
A KONIGL HQ/F C OWENS 11-Astronomy

**NGT 00-050-617 University of Chicago 3857**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
07/24/1990-08/31/1993 FY93: \$0 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D Q LAMB HQ/F C OWENS 13-Physics

**NGT 00-050-677 University of Chicago 3858**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
08/17/1990-01/31/1993 FY93: \$0 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R G KRON HQ/F C OWENS 13-Physics

**NGT 00-050-770 University of Chicago 3859**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
06/10/1991-06/30/1993 FY93: \$18,333 TOTAL: \$25,667  
*Prin. Invest. NASA Tech. Officer CASE Category*  
E N PARKER HQ/F C OWENS 13-Physics

**NGT 00-050-778 University of Chicago 3860**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
07/01/1991-06/30/1994 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D Q LAMB HQ/F C OWENS 11-Astronomy

**NGT 00-050-797 University of Chicago 3861**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
07/01/1991-06/30/1994 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
S SWORDY HQ/F C OWENS 13-Physics

**NGT 00-050-799 University of Chicago 3862**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
06/10/1991-06/30/1992 FY93: \$12,466 TOTAL: \$9,534  
*Prin. Invest. NASA Tech. Officer CASE Category*  
L GROSSMAN HQ/F C OWENS 32-Geological Sci

**NGT 00-050-894 University of Chicago 3863**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
05/07/1992-09/30/1994 FY93: \$22,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R H HIDEBRAND ARC/M MOORE 11-Astronomy

**NGT 00-050-993 University of Chicago 3864**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
09/17/1992-09/30/1994 FY93: \$22,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D N SCHRAMM HQ/J K ALEXANDER 13-Physics



**NASA'S UNIVERSITY PROGRAM**  
**ILLINOIS (Continued)**

**NGT 00-050-997 University of Chicago 3865**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 11/02/1992-09/30/1995 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M TURNER HQ/J ALEXANDER 13-Physics

**NAG 2-868 University of Illinois - Chicago Circle 3873**  
 RESEARCH IN ADVANCED METHODS FOR COMPUTATIONAL ELECTROMAGNETICS  
*Period Obligations*  
 08/11/1993-12/31/1994 FY93: \$131,125 TOTAL: \$131,125  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 K R UMASHANKAR ARC/A C WOO 45-Elec Engr  
 S R LAXPATI ....M J SCHUH

**NGT 00-051-059 University of Chicago 3866**  
 GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 06/09/1993-06/30/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D Q LAMB HQ/D HOLLAND 11-Astronomy

**NAG 3-796 University of Illinois - Chicago Circle 3874**  
 COMPREHENSIVE MODELING OF TURBULENT MULTI COMPONENT FUEL SPRAYS  
*Period Obligations*  
 04/16/1987-03/07/1994 FY93: \$40,448 TOTAL: \$242,138  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S K AGGARWAL LERC/D L BULZAN 46-Mech Engr

**NGT 00-051-066 University of Chicago 3867**  
 GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 06/01/1993-06/30/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D MULLER HQ/D HOLLAND 13-Physics

**NAG 3-1034 University of Illinois - Chicago Circle 3875**  
 PROBABILITY OF BRITTLE FAILURE  
*Period Obligations*  
 05/10/1989-07/22/1994 FY93: \$28,000 TOTAL: \$256,073  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A CHUDNOVSKY LERC/N N NEMETH 47-Materials Engr

**NGT 00-051-100 University of Chicago 3868**  
 GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 05/24/1993-06/30/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S MEYER HQ/J T LYNCH 19-Phys Sci, NEC

**NAG 3-1092 University of Illinois - Chicago Circle 3876**  
 DEVELOPMENT OF A COMPUTER SIMULATION CODE FOR THE DYNAMIC ANALYSIS OF ELASTIC ROTORCRAFT TRANS SYS  
*Period Obligations*  
 11/09/1989-01/12/1994 FY93: \$0 TOTAL: \$164,778  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 F M AMIROUCHE LERC/M J VALCO 46-Mech Engr

**NGT 00-051-157 University of Chicago 3869**  
 GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 06/22/1993-06/30/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S MEYER HQ/D HOLLAND 11-Astronomy

**NAG 3-1135 University of Illinois - Chicago Circle 3877**  
 NUMERICAL ANALYSIS OF A TIME-DEPENDENT TWO-PHASE NON-REACTING FLOW  
*Period Obligations*  
 02/09/1990-08/31/1993 FY93: \$0 TOTAL: \$68,126  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S K AGGARWAL LERC/D L BULZAN 46-Mech Engr

**NSG-2057 University of Chicago 3870**  
 STUDY OF SENSITIVE DETECTION SYSTEM FOR FAR INFRARED ASTRONOMY  
*Period Obligations*  
 12/14/1974-10/31/1994 FY93: \$471,300 TOTAL: \$2,458,237  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R H HILDEBRAND ARC/L C HAUGHNEY 11-Astronomy

**NAG 3-1469 University of Illinois - Chicago Circle 3878**  
 GENERATION AND TOOTH CONTACT ANALYSIS OF FORM-GROUND INVOLUTE HELICAL GEARS WITH NEW TOPOLOGY  
*Period Obligations*  
 04/08/1993-03/29/1994 FY93: \$80,000 TOTAL: \$80,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 F L LITVIN LERC/R F HANDSCHUH 46-Mech Engr  
 ....J J COX

**NAG 2-513 University of Illinois - Chicago Circle 3871**  
 THE SYMBOLIC COMPUTATION AND AUTOMATED ANALYSIS OF TRAJECTORIES OF CONTROL SYSTEMS  
*Period Obligations*  
 06/01/1988-12/31/1993 FY93: \$30,000 TOTAL: \$254,899  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R GROSSMAN ARC/G MEYER 49-Engr, NEC

**NAG 2-544 University of Illinois - Chicago Circle 3872**  
 ANALYTICAL AND NUMERICAL SCATTERING FROM ANISOTROPICTURES  
*Period Obligations*  
 08/15/1988-06/14/1992 FY93: \$0 TOTAL: \$231,697  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 P L USLENGHI ARC/A C WOO 45-Elec Engr

**NAG 9-111 University of Illinois - Chicago Circle 3879**  
 REFRACTORY INCLUSIONS IN CARBONACEOUS CHROMITE  
*Period Obligations*  
 06/24/1985-09/01/1993 FY93: \$0 TOTAL: \$214,800  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A M DAVIS JSC/I D BROWNE 32-Geological Sci

**NASA'S UNIVERSITY PROGRAM  
ILLINOIS (Continued)**

**NAG 1-613 University of Illinois at Urbana-Champaign 3880**  
CENTER OF EXCELLENCE IN AEROSPACE COMPUTING RESEARCH AND TECHNOLOGY  
*Period Obligations*  
08/26/1985-12/20/1993 FY93: \$575,000 TOTAL: \$4,338,544  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J W LIU LARC/W H BRYANT 22-Computer Science  
R K IYER

**NAG 1-1344 University of Illinois at Urbana-Champaign 3881**  
CORRELATIVE LIDAR AND RADAR MEASUREMENTS AND SCIENCE INVESTIGATION IN SUPPORT OF UARS PROGRAM  
*Period Obligations*  
08/28/1991-12/31/1993 FY93: \$57,938 TOTAL: \$282,300  
*Prin. Invest. NASA Tech. Officer CASE Category*  
C S GARDNER LARC/J G WELLS 31-Atmos Sci  
S J FRANKE

**NAG 1-1530 University of Illinois at Urbana-Champaign 3882**  
INSTANTANEOUS STRUCTURE OF SEPARATED TURBULENT BOULDRARY LAYERS NLPN 93-619  
*Period Obligations*  
08/03/1993-08/02/1994 FY93: \$31,460 TOTAL: \$31,460  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R J ADRIAN LARC/M J WALSH 41-Aero Engr

**NAG 1-1545 University of Illinois at Urbana-Champaign 3883**  
APPLICATION OF DESIGN OPTIMIZATION TO THE COLTROL OF TRANSPORT PHENOMENA IN MICROGRAVITY  
*Period Obligations*  
09/08/1993-09/07/1994 FY93: \$39,985 TOTAL: \$39,985  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J A DANTZIG LARC/A L FRIPP 19-Phys Sci, NEC  
D A TORTORELLI

**NAG 2-308 University of Illinois at Urbana-Champaign 3884**  
HUMAN PERFORMANCE AND WORKLOAD IN AUTOMATED SYSTEM  
*Period Obligations*  
10/01/1987-12/31/1993 FY93: \$120,720 TOTAL: \$1,049,480  
*Prin. Invest. NASA Tech. Officer CASE Category*  
C D WICKENS ARC/S G HART 69-Psych, NEC  
J ANDERSON

**NAG 2-567 University of Illinois at Urbana-Champaign 3885**  
SCHEDULING MODELS FOR WORKLOAD PREDICTION AND GUIDANCE  
*Period Obligations*  
03/21/1989-06/30/1993 FY93: \$60,790 TOTAL: \$170,029  
*Prin. Invest. NASA Tech. Officer CASE Category*  
N MORAY ARC/S G HART 69-Psych, NEC  
M DESSOUKY ....R J SHIVELY

**NAG 2-666 University of Illinois at Urbana-Champaign 3886**  
THE ASSESSMENT AND USE OF WORKLOAD MEASUREMENT TECHNIQUES IN THE ACQUISITION AND PERFORMANCE OF...  
*Period Obligations*  
08/16/1990-07/31/1994 FY93: \$117,511 TOTAL: \$202,568  
*Prin. Invest. NASA Tech. Officer CASE Category*  
E DOUCHIN ARC/M M CONNORS 99-Multi-Discip

**NAG 2-735 University of Illinois at Urbana-Champaign 3887**  
DISPLAY PROXIMITY, ATTENTION AND THE HEAD-UP DISPLAY  
*Period Obligations*  
10/07/1991-09/30/1993 FY93: \$19,987 TOTAL: \$39,699  
*Prin. Invest. NASA Tech. Officer CASE Category*  
C WICKENS ARC/D C FOYLE 69-Psych, NEC

**NAG 2-738 University of Illinois at Urbana-Champaign 3888**  
SHAPA: AN INTERACTIVE PROTOCOL ANALYSIS TOOL FOR MODELING CREW COMMUNICATIONS, STRATEGIC .....  
*Period Obligations*  
11/14/1991-12/31/1993 FY93: \$63,667 TOTAL: \$132,620  
*Prin. Invest. NASA Tech. Officer CASE Category*  
P M SANDERSON ARC/S G HART 69-Psych, NEC

**NAG 2-772 University of Illinois at Urbana-Champaign 3889**  
DESIGN AND EVALUATION OF SPATIALLY ENHANCED CAGING FOR LABORATORY RATS AT HIGH DENSITY  
*Period Obligations*  
04/09/1992-08/31/1993 FY93: \$0 TOTAL: \$100,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
P C HARRISON ARC/C C JOHNSON 59-Life Sci, NEC  
G L RISKOWSKI ....B J CORBIN

**NAG 2-823 University of Illinois at Urbana-Champaign 3890**  
HIGH PERFORMANCE COMPUTING FOR ELECTROMAGNETIC MODELING AND SIMULATION OF INTERCONNECTS  
*Period Obligations*  
12/23/1992-10/31/1993 FY93: \$75,000 TOTAL: \$75,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J E SCHUTT-AINE ARC/H LOMAX 45-Elec Engr

**NAG 2-852 University of Illinois at Urbana-Champaign 3891**  
PROPOSAL TO INVESTIGATE THE LOSS OF DUCTILITY IN HYDROGEN CHARGED B-TI ALLOYS  
*Period Obligations*  
06/30/1993-05/31/1994 FY93: \$75,430 TOTAL: \$75,430  
*Prin. Invest. NASA Tech. Officer CASE Category*  
I M ROBERTSON ARC/H G NELSON 47-Materials Engr

**NAG 2-863 University of Illinois at Urbana-Champaign 3892**  
EFFECTS OF DIET ON METABOLISM OF LABORATORY RATS  
*Period Obligations*  
08/04/1993-08/31/1994 FY93: \$105,742 TOTAL: \$105,742  
*Prin. Invest. NASA Tech. Officer CASE Category*  
P C HARRISON ARC/S M HING 51-Biological Sci  
R G MAGIRANG ....C C JOHNSON  
G L RISKOWSKI

**NAG 2-871 University of Illinois at Urbana-Champaign 3893**  
DEVELOPMENT OF FAST ALGORITHMS USING RECURSION AND TESTING FOR COMPUTATIONAL ELECTROMAGNETICS  
*Period Obligations*  
08/17/1993-07/31/1994 FY93: \$150,001 TOTAL: \$150,001  
*Prin. Invest. NASA Tech. Officer CASE Category*  
W C CHEW ARC/A C WOO 45-Elec Engr  
.....M J SCHUH

**NASA'S UNIVERSITY PROGRAM  
ILLINOIS (Continued)**

**NAG 3-1026 University of Illinois at Urbana-Champaign 3894**  
NUMERICAL INVESTIGATION OF HOT GAS INGESTION BY ST OVL AIRCRAFT  
*Period Obligations*  
06/08/1989-12/31/1993 FY93: \$0 TOTAL: \$218,994  
*Prin. Invest. NASA Tech. Officer CASE Category*  
S P VANKA LERC/J D HOLDEMAN 41-Aero Engr

**NAG 3-1037 University of Illinois at Urbana-Champaign 3895**  
SPACEBORNE CENTRIFUGAL RELAYS FOR SPACECRAFT PROPULSION AND RAPID LAUNCH OF HIGH VELOCITY PROJECTILES  
*Period Obligations*  
05/02/1989-05/21/1992 FY93: \$215 TOTAL: \$74,490  
*Prin. Invest. NASA Tech. Officer CASE Category*  
C E SINGER LERC/D C BYERS 42-Astro Engr  
....J S SOVEY

**NAG 3-1121 University of Illinois at Urbana-Champaign 3896**  
USE OF ROTATION TO SUPPRESS THERMOSOLUTAL CONVECTION IN DENDRITICALLY SOLIDIFIED BINARY ALLOYS  
*Period Obligations*  
01/18/1990-08/16/1993 FY93: \$0 TOTAL: \$97,535  
*Prin. Invest. NASA Tech. Officer CASE Category*  
A J PEARLSTEIN LERC/T K GLASGOW 47-Materials Engr

**NAG 3-1134 University of Illinois at Urbana-Champaign 3897**  
EFFECT OF ICE ACCRETION ON AIRCRAFT AERODYNAMICS  
*Period Obligations*  
02/13/1990-11/17/1993 FY93: \$90,000 TOTAL: \$372,448  
*Prin. Invest. NASA Tech. Officer CASE Category*  
M B BRAGG LERC/M G POTAPCZUK 41-Aero Engr

**NAG 3-1148 University of Illinois at Urbana-Champaign 3898**  
THREE-DIMENSIONAL GRID ADAPTATION TO GEOMETRY AND FLOW SOLUTIONS  
*Period Obligations*  
03/15/1990-01/28/1994 FY93: \$20,000 TOTAL: \$135,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
K D LEE LERC/Y K CHOO 41-Aero Engr

**NAG 3-1208 University of Illinois at Urbana-Champaign 3899**  
PARALLEL ALGORITHMS FOR TIME INTEGRATION OF NAVIER-STOKES EQUATIONS  
*Period Obligations*  
09/26/1990-06/30/1993 FY93: \$0 TOTAL: \$55,732  
*Prin. Invest. NASA Tech. Officer CASE Category*  
A SAMEH LERC/C W PUTT 29-Math/Computer, NEC  
....S M SIDIK

**NAG 3-1247 University of Illinois at Urbana-Champaign 3900**  
MODELING OF MICROGRAVITY COMBUSTION EXPERIMENTS  
*Period Obligations*  
02/21/1991-02/10/1994 FY93: \$65,000 TOTAL: \$195,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J BUDCMERTOR LERC/H D ROSS 21-Mathematics

**NAG 3-1286 University of Illinois at Urbana-Champaign 3901**  
APPLICATION OF DESIGN OPTIMIZATION TO THE CONTROL OF TRANSPORT PROCESSES IN MICROGRAVITY  
*Period Obligations*  
06/20/1991-05/31/1993 FY93: \$0 TOTAL: \$140,024  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J A DANTZIG LERC/A CHAIT 47-Materials Engr  
D A TORTORELLI

**NAG 3-1351 University of Illinois at Urbana-Champaign 3902**  
OPTIMIZATION OF AN AEROSPACE CASTING  
*Period Obligations*  
06/09/1992-05/31/1993 FY93: \$0 TOTAL: \$21,588  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J A DANTZIG LERC/T K GLASGOW 47-Materials Engr

**NAG 3-1360 University of Illinois at Urbana-Champaign 3903**  
PERFORMANCE OF LOW POWER PULSED ARCJETS  
*Period Obligations*  
07/09/1992-03/24/1994 FY93: \$35,000 TOTAL: \$65,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R L BURTON LERC/J M SANKOVIC 42-Astro Engr  
....E J PENCIL

**NAG 3-1374 University of Illinois at Urbana-Champaign 3904**  
FURTHER EXPERIMENTAL INVESTIGATION OF THE LOW-FREQUENCY FLOW OSCILLATION ON AIRFOILS  
*Period Obligations*  
11/05/1992-02/20/1994 FY93: \$27,169 TOTAL: \$27,169  
*Prin. Invest. NASA Tech. Officer CASE Category*  
M B BRAGG LERC/K O ZAMAN 46-Mech Engr

**NAG 3-1474 University of Illinois at Urbana-Champaign 3905**  
STUDY OF TIME DOMAIN ELECTROMAGNETIC SCATTERING  
*Period Obligations*  
05/05/1993-04/11/1994 FY93: \$250,000 TOTAL: \$250,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
S W LEE LERC/A J ZAMAN 45-Elec Engr

**NAG 5-1295 University of Illinois at Urbana-Champaign 3906**  
DETECTION OF GREENHOUSE EFFECTS IN POLAR REGIONS  
*Period Obligations*  
09/12/1989-03/31/1993 FY93: \$34,088 TOTAL: \$235,281  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J W WALSH GSFC/H J ZWALLY 39-Env Sci, NEC

**NAG 5-1312 University of Illinois at Urbana-Champaign 3907**  
EVOLUTION OF ATTACHED/DETACHED SLOBS/THEIR ASSOCIATED DYNAMICS  
*Period Obligations*  
11/28/1989-04/30/1992 FY93: \$0 TOTAL: \$100,080  
*Prin. Invest. NASA Tech. Officer CASE Category*  
A T HSUI GSFC/J E WELKER 32-Geological Sci

**NASA'S UNIVERSITY PROGRAM  
ILLINOIS (Continued)**

<b>NAG 5-1400</b>	<b>University of Illinois at Urbana-Champaign</b>		<b>3908</b>
	ABUNDANCE ENRICHMENTS IN PLANETARY NEBULAE		
	<i>Period</i>	<i>Obligations</i>	
	06/29/1990-07/14/1993	FY93: \$0	
	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	
	J B KALER	GSFC/D WEST	TOTAL: \$21,999 <i>CASE Category</i> 11-Astronomy
<b>NAG 5-1565</b>	<b>University of Illinois at Urbana-Champaign</b>		<b>3909</b>
	DELAY GAMMA RAYS FROM CLASSICAL NOVAE		
	<i>Period</i>	<i>Obligations</i>	
	04/17/1991-05/14/1993	FY93: \$0	
	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	
	J W TRURAN	GSFC/J NORRIS ...../D A KNIFFEN	TOTAL: \$65,000 <i>CASE Category</i> 11-Astronomy
<b>NAG 5-1755</b>	<b>University of Illinois at Urbana-Champaign</b>		<b>3910</b>
	HIGH-VELOCITY GAS IN PLANETARY NEBULAE AND SUPERNOVA REMNANTS IN SUPERBUBBLES		
	<i>Period</i>	<i>Obligations</i>	
	08/20/1991-08/31/1992	FY93: \$0	
	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	
	Y CHU	GSFC/D WEST	TOTAL: \$94,500 <i>CASE Category</i> 11-Astronomy
<b>NAG 5-1896</b>	<b>University of Illinois at Urbana-Champaign</b>		<b>3911</b>
	THE ROLE OF TOMS AND SAGE FOR UNDERSTANDING THE EFFECTS OF VOLCANICALLY INDUCED DECREASED RADIATION		
	<i>Period</i>	<i>Obligations</i>	
	02/14/1992-02/28/1994	FY93: \$37,000	
	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	
	P HANDLER	GSFC/L WALTER	TOTAL: \$55,000 <i>CASE Category</i> 31-Atmos Sci
	K SCHATTEN		
<b>NAG 5-1900</b>	<b>University of Illinois at Urbana-Champaign</b>		<b>3912</b>
	DIFFUSE SOFT X-RAY EMISSION FROM THE DUMBBELL NEBULA (NGC6853)?!		
	<i>Period</i>	<i>Obligations</i>	
	02/20/1992-02/28/1994	FY93: \$31,300	
	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	
	Y H CHU	GSFC/R PETRE	TOTAL: \$60,141 <i>CASE Category</i> 11-Astronomy
<b>NAG 5-2018</b>	<b>University of Illinois at Urbana-Champaign</b>		<b>3913</b>
	THE X-RAY STRUCTURE OF THE SUPERNOVA REMNANT W49B		
	<i>Period</i>	<i>Obligations</i>	
	07/08/1992-01/14/1994	FY93: \$0	
	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	
	J R DICKEL	GSFC/R PETRE	TOTAL: \$17,999 <i>CASE Category</i> 11-Astronomy
<b>NAG 5-2040</b>	<b>University of Illinois at Urbana-Champaign</b>		<b>3914</b>
	EOSDIS VERSION O STANDARD DATA FORMAT SUPPORT		
	<i>Period</i>	<i>Obligations</i>	
	07/16/1992-07/31/1994	FY93: \$0	
	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	
	M FOLK	GSFC/E F STOCKER	TOTAL: \$179,950 <i>CASE Category</i> 22-Computer Science
<b>NAG 5-2112</b>	<b>University of Illinois at Urbana-Champaign</b>		<b>3915</b>
	A NEW SNR CANDIDATE HIDDEN IN THE LUMINOUS HII REGION 159		
	<i>Period</i>	<i>Obligations</i>	
	10/08/1992-10/14/1993	FY93: \$6,000	
	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	
	Y H CHU	GSFC/D WEST	TOTAL: \$6,000 <i>CASE Category</i> 11-Astronomy
<b>NAG 5-2201</b>	<b>University of Illinois at Urbana-Champaign</b>		<b>3916</b>
	DEVELOPMENT OF SCALABLE ALGORITHMS FOR NUMERICAL RELATIVITY		
	<i>Period</i>	<i>Obligations</i>	
	02/23/1993-11/30/1993	FY93: \$29,998	
	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	
	P E SAYLOR	GSFC/J R FISCHER	TOTAL: \$29,998 <i>CASE Category</i> 22-Computer Science
	F SAIED		
	E SEIDEL		
<b>NAG 5-2244</b>	<b>University of Illinois at Urbana-Champaign</b>		<b>3917</b>
	INTELLIGENT COMMAND AND CONTROL SYSTEM FOR SATELLITE GROUND OPERATIONS		
	<i>Period</i>	<i>Obligations</i>	
	04/14/1993-04/14/1994	FY93: \$37,415	
	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	
	P M JONES	GSFC/A W STOFFEL	TOTAL: \$37,415 <i>CASE Category</i> 22-Computer Science
<b>NAG 5-2245</b>	<b>University of Illinois at Urbana-Champaign</b>		<b>3918</b>
	SUPERNOVA REMNANTS HIDDEN IN SUPERBUBBLES		
	<i>Period</i>	<i>Obligations</i>	
	04/08/1993-10/14/1994	FY93: \$15,000	
	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	
	M MACLOW	GSFC/R PETRE	TOTAL: \$15,000 <i>CASE Category</i> 11-Astronomy
<b>NAG 8-934</b>	<b>University of Illinois at Urbana-Champaign</b>		<b>3919</b>
	LASER GLAZING FOR IMPROVED MECHANICAL PROPERTIES		
	<i>Period</i>	<i>Obligations</i>	
	08/14/1992-02/13/1993	FY93: \$0	
	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	
	J MAZUMDER	MSFC/R POORMAN ...../B BHAT	TOTAL: \$10,000 <i>CASE Category</i> 47-Materials Engr
<b>NAG 8-976</b>	<b>University of Illinois at Urbana-Champaign</b>		<b>3920</b>
	THE ROLE OF SOLVATION FORCES IN PROTEIN CRYSTALLIZATION IN MICROGRAVITY		
	<i>Period</i>	<i>Obligations</i>	
	06/29/1993-12/31/1993	FY93: \$125,000	
	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	
	E B VAN SWOL	MSFC/M PUSEY	TOTAL: \$125,000 <i>CASE Category</i> 43-Chem Engr
	C F ZUKOSKI	...../R SNYDER	
<b>NAGW 992</b>	<b>University of Illinois at Urbana-Champaign</b>		<b>3921</b>
	OBSERVATIONAL STUDY OF RECENT HIGH-LATITUDE OZONE		
	<i>Period</i>	<i>Obligations</i>	
	11/01/1986-06/30/1993	FY93: \$0	
	<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	
	J WALSH	HQ/J KAYE	TOTAL: \$311,828 <i>CASE Category</i> 31-Atmos Sci
		...../D M BUTLER	

**NASA'S UNIVERSITY PROGRAM  
ILLINOIS (Continued)**

**NAGW 1104 University of Illinois at Urbana-Champaign 3922**  
MICROPHYSICAL THEORY OF DIFFUSE ASTRONOMICAL ENVIRONMENTS  
*Period* *Obligations*  
06/01/1987-12/31/1993 FY93: \$72,000 TOTAL: \$390,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
W D WATSON HQ/F C GILLET 11-Astronomy  
....R V STACHNIK

**NAGW 2554 University of Illinois at Urbana-Champaign 3929**  
NAGW-2554/UNIV ILLINOIS/ARCHAEBACTERIA AND THE EVOLUTION OF THE CELL  
*Period* *Obligations*  
06/10/1991-12/31/1993 FY93: \$117,499 TOTAL: \$344,379  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
C R WOESE HQ/J D RUMMEL 51-Biological Sci

**NAGW 1131 University of Illinois at Urbana-Champaign 3923**  
RADIO ASTRONOMICAL STUDIES OF COMETS  
*Period* *Obligations*  
07/01/1987-12/31/1991 FY93: \$0 TOTAL: \$343,284  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
L E SNYDER HQ/H C BRINTON 11-Astronomy  
....J H RAHE

**NAGW 2945 University of Illinois at Urbana-Champaign 3930**  
STATISTICAL ANALYSIS OF TRIGONOMETRIC PARALLAXES  
*Period* *Obligations*  
02/28/1992-12/31/1993 FY93: \$77,051 TOTAL: \$133,229  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
S CASERTANO HQ/R STACHNIK 13-Physics  
....E J WEILER

**NAGW 1583 University of Illinois at Urbana-Champaign 3924**  
STUDIES IN THEORETICAL X-RAY ASTRONOMY  
*Period* *Obligations*  
02/14/1989-02/31/1993 FY93: \$100,000 TOTAL: \$565,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
F K LAMB HQ/L J KALUZIENSKI 11-Astronomy  
....A N BUNNER

**NAGW 2996 University of Illinois at Urbana-Champaign 3931**  
THE TERRESTRIAL GRAVITATIONAL WAVE ENVIRONMENT FROM KNOWN SOURCES  
*Period* *Obligations*  
03/12/1992-12/31/1993 FY93: \$0 TOTAL: \$13,671  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R F WEBBINK HQ/R V STACHNIK 11-Astronomy  
....E J WEILER

**NAGW 1683 University of Illinois at Urbana-Champaign 3925**  
NUMERICAL METHODS FOR FREE AND MOVING BOUNDARY PROBLEMS  
*Period* *Obligations*  
02/16/1989-02/29/1992 FY93: \$0 TOTAL: \$161,414  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J A DANTZIG HQ/J K ALEXANDER 47-Materials Engr  
....D A HOLLAND

**NAGW 3541 University of Illinois at Urbana-Champaign 3932**  
THERMAL HISTORY AND MANTLE DYNAMICS OF VENUS  
*Period* *Obligations*  
04/21/1993-03/14/1994 FY93: \$35,000 TOTAL: \$35,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
A T HSUI HQ/J T BERGSTRALH 32-Geological Sci

**NAGW 1729 University of Illinois at Urbana-Champaign 3926**  
DYNAMICS OF STRATOSPHERIC PLANETARY WAVES  
*Period* *Obligations*  
03/27/1989-02/28/1994 FY93: \$47,328 TOTAL: \$252,161  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
W A ROBINSON HQ/R D MCPETERS 31-Atmos Sci  
....M J PRATHER

**NAS 1-19950 University of Illinois at Urbana-Champaign 3933**  
SCIENCE SUPPORT TO THE LITE SCIENCE TEAM  
*Period* *Obligations*  
05/19/1993-05/18/1995 FY93: \$25,000 TOTAL: \$25,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
C S GARDNER LARC/G L MADDREA 31-Atmos Sci

**NAGW 2299 University of Illinois at Urbana-Champaign 3927**  
SEARCH FOR INTERSTELLAR AND CIRCUMSTELLAR MOLECULES OF POSSIBLE BIOLOGICAL SIGNIFICANCE  
*Period* *Obligations*  
05/21/1991-10/31/1993 FY93: \$39,998 TOTAL: \$119,976  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
L E SNYDER HQ/J A NUTH 19-Phys Sci, NEC

**NAS 1-19957 University of Illinois at Urbana-Champaign 3934**  
SAGE II SCIENTIFIC INVESTIGATIONS  
*Period* *Obligations*  
05/13/1993-05/12/1996 FY93: \$70,000 TOTAL: \$70,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
N SONG LARC/G L MADDREA 31-Atmos Sci  
....M P MC CORMAC

**NAGW 2421 University of Illinois at Urbana-Champaign 3928**  
THEORETICAL PREDICTION OF MULTI-FREQUENCY EMISSION FROM NOVAE IN OUTBURST  
*Period* *Obligations*  
04/19/1991-12/31/1993 FY93: \$92,600 TOTAL: \$293,600  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J W TRURAN HQ/G S KUTTER 11-Astronomy  
....G R RIEGLER

**NAS 5-31340 University of Illinois at Urbana-Champaign 3935**  
INTERACTIVE ENVIRONMENT FOR ANALYSIS OF LARGE EARTH OBSERVATION AND MODEL SETS  
*Period* *Obligations*  
06/05/1991-06/04/1992 FY93: \$0 TOTAL: \$200,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
K BOWMAN GSFC/J BREDEKAMP 22-Computer Science  
....H BURRITT

**NASA'S UNIVERSITY PROGRAM**  
**ILLINOIS (Continued)**

**NAS 5-31345 University of Illinois at Urbana-Champaign 3936**  
NRA-89-OSSA-21, APPLIED INFORMATION SYSTEMS RESEARCH  
*Period Obligations*  
07/31/1991-07/30/1992 FY93: \$0 TOTAL: \$75,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R WILHELMSON HQ/J BREDEKAMP 22-Computer Science

**NCC 2-481 University of Illinois at Urbana-Champaign 3943**  
EFFICIENT EVALUATION OF AI PROGRAMS  
*Period Obligations*  
01/01/1987-12/31/1992 FY93: \$0 TOTAL: \$688,270  
*Prin. Invest. NASA Tech. Officer CASE Category*  
B W WAH ARC/H LUM 22-Computer Science  
...../D MCKELLAR

**NCA 2-550 University of Illinois at Urbana-Champaign 3937**  
VISUALIZATION OF 3-D PERSPECTIVE-DEPENDENT TARGET PROFILES  
*Period Obligations*  
08/06/1990-07/20/1992 FY93: \$0 TOTAL: \$40,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
P H LEE ARC/A WOO 45-Elec Engr  
P S W. LEE

**NCC 2-632 University of Illinois at Urbana-Champaign 3944**  
CONTEXT, COMPUTATION, AND COMPLEXITY: APPLICATIONS TO AVIATION DISPLAY SYSTEM  
*Period Obligations*  
08/10/1989-08/31/1993 FY93: \$26,510 TOTAL: \$281,110  
*Prin. Invest. NASA Tech. Officer CASE Category*  
C D WICKENS ARC/K CORKER 69-Psych, NEC

**NCA 2-616 University of Illinois at Urbana-Champaign 3938**  
NON-VERBAL CUES IN COCKPIT COMMUNICATION  
*Period Obligations*  
05/28/1991-12/31/1993 FY93: \$0 TOTAL: \$80,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
C D WICKENS ARC/B G KANKI 62-Social Aspects  
L D SEGAL ....E A PALMER

**NCC 3-156 University of Illinois at Urbana-Champaign 3945**  
ANTENNA CONFIGURATION STUDY FOR ATRRSS  
*Period Obligations*  
12/11/1989-09/30/1993 FY93: \$0 TOTAL: \$220,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
S W LEE LERC/G FUJIKAWA 45-Elec Engr  
Y T LO

**NCA 2-666 University of Illinois at Urbana-Champaign 3939**  
STUDY OF WAVE FRONT INTEGRATION AND OTHER PROBLEMS IN RAY TECHNIQUES  
*Period Obligations*  
11/04/1991-05/01/1993 FY93: \$0 TOTAL: \$40,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
S W LEE ARC/A WOO 45-Elec Engr

**NCC 3-216 University of Illinois at Urbana-Champaign 3946**  
A MULTIBEAM ANTENNA STUDY FOR NASA SPACE EXPLORATION INITIATIVE  
*Period Obligations*  
05/07/1991-06/30/1993 FY93: \$0 TOTAL: \$95,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
S W LEE LERC/R Q LEE 45-Elec Engr

**NCA 2-667 University of Illinois at Urbana-Champaign 3940**  
VISUALIZATION OF RADAR CROSS SECTION  
*Period Obligations*  
11/04/1991-11/04/1993 FY93: \$0 TOTAL: \$40,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
S W LEE ARC/A C WOO 45-Elec Engr

**NCC 5-47 University of Illinois at Urbana-Champaign 3947**  
OPERATION OF ILLINOIS STATE WATER SURVEY HOT RADAR IN SUPPORT OF STORM-FEST  
*Period Obligations*  
02/12/1992-09/14/1992 FY93: \$0 TOTAL: \$30,285  
*Prin. Invest. NASA Tech. Officer CASE Category*  
H T OCHS GSFC/S E KOCH 31-Atmos Sci  
R M RAUBER ....F EINAUDI

**NCA 2-742 University of Illinois at Urbana-Champaign 3941**  
AERODYNAMICS DESIGN OPTIMIZATION USING THE NAVIER-STOKES EQUATIONS  
*Period Obligations*  
08/05/1992-08/19/1993 FY93: \$16,000 TOTAL: \$26,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
K D LEE ARC/D KWAK 41-Aero Engr  
...../S E ROGERS

**NGT 00-030-112 University of Illinois at Urbana-Champaign 3948**  
NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
11/02/1992-08/31/1994 FY93: \$44,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J W WEATHERLY HQ/G ASRAR 99-Multi-Discip  
...../D M BUTLER

**NCA 2-833 University of Illinois at Urbana-Champaign 3942**  
DESIGN OPTIMIZATION OF MULTI-ELEMENT AIRFOILS WITH THE NAVIER-STOKES EQUATIONS  
*Period Obligations*  
08/16/1993-08/19/1995 FY93: \$15,000 TOTAL: \$15,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
K D LEE ARC/S E ROGERS 41-Aero Engr

**NGT 00-040-017 University of Illinois at Urbana-Champaign 3949**  
NATIONAL SPACE GRANT COLLEGE AND FELLOWSHIP PROGRAM  
*Period Obligations*  
04/03/1991-01/31/1994 FY93: \$383,000 TOTAL: \$1,088,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
K R SIVIER HQ/E T SCHWARTZ 99-Multi-Discip

**NASA'S UNIVERSITY PROGRAM**  
**ILLINOIS (Continued)**

**NGT 00-050-363 University of Illinois at Urbana-Champaign 3950**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  

<i>Period</i>	<i>Obligations</i>	
08/08/1988-03/31/1992	FY93: \$8,599	TOTAL: \$60,401
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
R A BEDDINI	HQ/F C OWENS	41-Aero Engr

**NGT 00-051-064 University of Illinois at Urbana-Champaign 3957**  
 GRADUATE STUDENT RESEARCHERS PROGRAM  

<i>Period</i>	<i>Obligations</i>	
06/01/1993-06/30/1994	FY93: \$22,000	TOTAL: \$22,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
F B VAN SWOL	HQ/B CARPENTER	43-Chem Engr

**NGT 00-050-743 University of Illinois at Urbana-Champaign 3951**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  

<i>Period</i>	<i>Obligations</i>	
08/16/1991-06/30/1994	FY93: \$22,000	TOTAL: \$66,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
B W WAH	HQ/F C OWENS	22-Computer Science

**NGT 00-070-041 University of Illinois at Urbana-Champaign 3958**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED MINORITY FOCUS PROGRAM  

<i>Period</i>	<i>Obligations</i>	
10/19/1987-08/20/1992	FY93: \$0	TOTAL: \$76,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
S A LAMB	HQ/F C OWENS	13-Physics

**NGT 00-050-833 University of Illinois at Urbana-Champaign 3952**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  

<i>Period</i>	<i>Obligations</i>	
07/02/1991-08/20/1994	FY93: \$22,000	TOTAL: \$66,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
R K IYER	HQ/F C OWENS	22-Computer Science

**NGT 00-070-107 University of Illinois at Urbana-Champaign 3959**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED MINORITY FOCUS PROGRAM  

<i>Period</i>	<i>Obligations</i>	
12/06/1988-11/30/1992	FY93: \$0	TOTAL: \$80,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
M J KUSHNER	HQ/F C OWENS	45-Elec Engr

**NGT 00-050-840 University of Illinois at Urbana-Champaign 3953**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  

<i>Period</i>	<i>Obligations</i>	
08/30/1991-06/30/1992	FY93: \$0	TOTAL: \$22,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
R L BURTON	HQ/F C OWENS	41-Aero Engr

**NGT 00-070-292 University of Illinois at Urbana-Champaign 3960**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED MINORITY FOCUS PROGRAM  

<i>Period</i>	<i>Obligations</i>	
11/27/1992-12/31/1993	FY93: \$22,000	TOTAL: \$22,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
S P VANKA	HQ/P HUNTER	46-Mech Engr

**NGT 00-050-873 University of Illinois at Urbana-Champaign 3954**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  

<i>Period</i>	<i>Obligations</i>	
05/07/1992-06/30/1994	FY93: \$22,000	TOTAL: \$44,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
D GOLDBERG	JSC/S GOLDSTEIN	22-Computer Science

**NGT 00-090-062 University of Illinois at Urbana-Champaign 3961**  
 THE ALLIANCE FOR SUCCESS AND NASA SUMMER RESEARCH OPPORTUNITIES PROGRAM  

<i>Period</i>	<i>Obligations</i>	
05/21/1992-12/31/1993	FY93: \$63,971	TOTAL: \$102,318
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
J E GRIVES	HQ/M S MARGOLIS	99-Multi-Discip

**NGT 00-051-023 University of Illinois at Urbana-Champaign 3955**  
 GRADUATE STUDENT RESEARCHERS PROGRAM  

<i>Period</i>	<i>Obligations</i>	
05/05/1993-06/30/1994	FY93: \$22,000	TOTAL: \$22,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
D A REED	ARC/M MOORE	22-Computer Science

**NGT 00-090-066 University of Illinois at Urbana-Champaign 3962**  
 COMMITTEE ON INSTITUTIONAL COOPERATION ON WOMEN IN SCIENCE AND ENG'G  

<i>Period</i>	<i>Obligations</i>	
08/28/1992-07/31/1993	FY93: \$0	TOTAL: \$25,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
J GIRVES	HQ/B L WHITE	99-Multi-Discip
	....S MASSENBERG	

**NGT 00-051-051 University of Illinois at Urbana-Champaign 3956**  
 GRADUATE STUDENT RESEARCHERS PROGRAM  

<i>Period</i>	<i>Obligations</i>	
05/19/1993-06/30/1994	FY93: \$22,000	TOTAL: \$22,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
M B BRAGG	LERC/F MONTEGANI	41-Aero Engr

# NASA'S UNIVERSITY PROGRAM INDIANA

## INDIANA

### NAG 5-1513 De Pauw University 3963

COINCIDENT OBSERVATIONS BETWEEN GRO AND GROUND-BASED VHE GAMMA RAY TELESCOPES

Period	Obligations	
03/27/1991-10/31/1993	FY93: \$0	TOTAL: \$41,047
Prin. Invest.	NASA Tech. Officer	CASE Category
M P KERTZMAN	GSFC/J P NORRIS	11-Astronomy
	....D A KNIFFEN	

### NAGW 2336 De Pauw University 3964

MARS GEOLOGIC MAPPING; DAO HARMAKHIS, AND REULL VA LLES REGION

Period	Obligations	
01/23/1991-12/31/1993	FY93: \$16,335	TOTAL: \$34,155
Prin. Invest.	NASA Tech. Officer	CASE Category
K H PRICE	HQ/T A MAXWELL	32-Geological Sci

### NAG 8-266 Earlham College 3965

JOVE

Period	Obligations	
12/30/1992-03/31/1994	FY93: \$47,000	TOTAL: \$47,000
Prin. Invest.	NASA Tech. Officer	CASE Category
R HIRELY	MSFC/F SIX	99-Multi-Discip

### NAG 3-952 Indiana State University 3966

ELECTRON SPIN RESONANCE STUDIES OF PMR-15

Period	Obligations	
11/14/1988-11/30/1992	FY93: \$22	TOTAL: \$91,773
Prin. Invest.	NASA Tech. Officer	CASE Category
M K AHN	LERC/K J BOWLES	47-Materials Engr

### NAG 5-1734 Indiana State University 3967

EVIDENCE IN PALAEOLAKE SHORELINES FOR THE NEOTECTONICS OF THE ALTIPLANO

Period	Obligations	
08/13/1991-08/14/1994	FY93: \$37,802	TOTAL: \$126,527
Prin. Invest.	NASA Tech. Officer	CASE Category
S DE SILVA	GSFC/B G BILLS	32-Geological Sci

### NGT 00-050-911 Indiana State University 3968

NASA GRADUATE STUDENT RESEARCHERS PROGRAM

Period	Obligations	
06/22/1992-06/30/1994	FY93: \$22,000	TOTAL: \$43,984
Prin. Invest.	NASA Tech. Officer	CASE Category
D PRENTICE	HQ/J ALEXANDER	51-Biological Sci

### NAG 2-756 Indiana Univ.-Purdue U. at Indianapolis 3969

CELL KINETICS AND HISTOMORPHOMETRIC ANALYSIS OF MICROGRAVITATIONAL OSTEOGENESIS: (PARE.02B)

Period	Obligations	
01/31/1992-11/30/1993	FY93: \$134,472	TOTAL: \$268,794
Prin. Invest.	NASA Tech. Officer	CASE Category
W E ROBERTS	ARC/C M WINGET	51-Biological Sci
L P GARETTO	....P X CALLAHAN	

### NAG 3-1246 Indiana Univ.-Purdue U. at Indianapolis 3970

A COMPUTATIONAL GRID ORIENTED DATA BASE FOR THE PARALLEL COMPUTATION OF TURBOMACHINERY PROBLEMS

Period	Obligations	
02/20/1991-06/08/1994	FY93: \$84,995	TOTAL: \$223,886
Prin. Invest.	NASA Tech. Officer	CASE Category
A EGER	LERC/R A BLECH	29-Math/Computer, NEC

### NCC 2-594 Indiana Univ.-Purdue U. at Indianapolis 3971

CELL KINETIC AND HISTOMORPHOMETRIC ANALYSIS OF MICROGRAVITATIONAL OSTEOGENESIS

Period	Obligations	
03/15/1989-10/31/1993	FY93: \$75,000	TOTAL: \$420,744
Prin. Invest.	NASA Tech. Officer	CASE Category
W E ROBERTS	ARC/E M HOLTON	51-Biological Sci

### NAG 2-762 Indiana University - Bloomington 3972

EFFECTS OF METEOROID EROSION IN PLANETARY RINGS

Period	Obligations	
02/25/1992-12/31/1994	FY93: \$55,661	TOTAL: \$80,005
Prin. Invest.	NASA Tech. Officer	CASE Category
R H DURISEN	ARC/J N CUZZI	11-Astronomy

### NAG 3-1014 Indiana University - Bloomington 3973

STUDIES OF FLUID-ABSORPTION SOLAR-ENERGY RECEIVER TECHNOLOGY EMPLOYING HALOGEN GASES

Period	Obligations	
02/09/1989-04/15/1993	FY93: \$0	TOTAL: \$125,000
Prin. Invest.	NASA Tech. Officer	CASE Category
E J BAIR	LERC/M O DUSTIN	46-Mech Engr
P W LANGHOFF		

### NAG 5-1394 Indiana University - Bloomington 3974

HIGH RESOLUTION GAMMA-RAY ASTRONOMY RESEARCH/ANALYSIS

Period	Obligations	
05/21/1990-08/14/1994	FY93: \$17,000	TOTAL: \$187,000
Prin. Invest.	NASA Tech. Officer	CASE Category
D FRIESEL	GSFC/N GEHRELS	13-Physics

### NAG 5-1941 Indiana University - Bloomington 3975

APPLICATION OF GLOBAL POSITIONING SYSTEM MEASUREMENTS TO CONTINENTAL COLLISION IN THE PAMIR-TIEN-SHAN

Period	Obligations	
03/12/1992-03/31/1994	FY93: \$79,538	TOTAL: \$124,194
Prin. Invest.	NASA Tech. Officer	CASE Category
M W HAMBURGER	GSFC/B G BILLS	11-Astronomy

### NAG 5-2106 Indiana University - Bloomington 3976

THE UNUSUAL S STAR SYSTEM HD 191589

Period	Obligations	
10/08/1992-01/31/1994	FY93: \$5,000	TOTAL: \$5,000
Prin. Invest.	NASA Tech. Officer	CASE Category
H R JOHNSON	GSFC/D WEST	11-Astronomy

### NAGW 1035 Indiana University - Bloomington 3977

SUPERCONDUCTING MAGNET INSTRUMENT

Period	Obligations	
02/15/1987-11/30/1994	FY93: \$120,000	TOTAL: \$650,000
Prin. Invest.	NASA Tech. Officer	CASE Category
R M HEINZ	HQ/M M MELLOTT	13-Physics
	....W V JONES	



**NASA'S UNIVERSITY PROGRAM**  
**INDIANA (Continued)**

**NAGW 1548 Indiana University - Bloomington 3978**  
 GRAVITY AS A PROBE FOR UNDERSTANDING EMBRYONIC PATTERN  
*Period Obligations*  
 12/12/1988-02/28/1993 FY93: \$0 TOTAL: \$190,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 G M MALACINSKI HQ/T W HALSTEAD 51-Biological Sci

**NAGW 1940 Indiana University - Bloomington 3979**  
 ISOTOPIC BIOGEOCHEMISTRY  
*Period Obligations*  
 04/27/1990-11/30/1993 FY93: \$130,251 TOTAL: \$500,251  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J M HAYES HQ/T D RUMMEL 32-Geological Sci

**NAGW 2400 Indiana University - Bloomington 3980**  
 NAGW-2400/INDIANA UNIV/SIMULATIONS OF GLOBULAR CLUSTER AND GALACTIC NUCLEUS DYNAMICAL EVOLUTION  
*Period Obligations*  
 03/07/1991-01/31/1994 FY93: \$74,735 TOTAL: \$204,493  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 H N COHN HQ/G S KUTTER 11-Astronomy  
 ....G R RIEGLER

**NAGW 3399 Indiana University - Bloomington 3981**  
 NUMERICAL 3D SIMULATIONS OF GRAVITATIONAL INSTABILITIES IN PROTOSTELLAR DISKS AND THE NEBULA  
*Period Obligations*  
 03/15/1993-02/28/1994 FY93: \$40,000 TOTAL: \$40,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R DURISON HQ/J A NUTH 19-Phys Sci, NEC

**NAGW 3404 Indiana University - Bloomington 3982**  
 PETROLOGIC EVOLUTION OF LUNAR AND METEORITE PARENT BODY REGOLITH  
*Period Obligations*  
 02/23/1993-02/28/1994 FY93: \$30,900 TOTAL: \$30,900  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A BASU HQ/H C BRINTON 32-Geological Sci

**NCA 2-615 Indiana University - Bloomington 3983**  
 VISUAL EVALUATION OF NIGHT VISION GOGGLES  
*Period Obligations*  
 05/28/1991-08/31/1992 FY93: \$0 TOTAL: \$16,331  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A BRADLEY ARC/M KAISER 56-Medical Sciences  
 ....D C FOYLE

**NGT 00-030-125 Indiana University - Bloomington 3984**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
 10/30/1992-08/31/1994 FY93: \$44,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 K L LECKRONE HQ/G ASRAR 32-Geological Sci  
 ....D M BUTLER

**NGT 00-050-861 Indiana University - Bloomington 3985**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 09/19/1991-07/31/1993 FY93: \$0 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S D JOHNSON HQ/F C OWENS 22-Computer Science

**NSG-9077 Indiana University - Bloomington 3986**  
 EVOLUTION OF APOLLO 15 DRILL CORE SOILS  
*Period Obligations*  
 06/12/1979-03/01/1994 FY93: \$0 TOTAL: \$355,632  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A BASU JSC/I D BROWNE 32-Geological Sci

**NGT 00-051-172 Indiana University - South Bend 3987**  
 GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 08/06/1993-08/31/1994 FY93: \$15,300 TOTAL: \$15,300  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A ECER HQ/P HUNTER 45-Elec Engr

**NCC 3-317 Manchester College 3988**  
 INTERCALATION OF GRAPHITE FIBERS FOR SPACE POWER APPLICATIONS  
*Period Obligations*  
 09/01/1993-08/22/1994 FY93: \$12,100 TOTAL: \$12,100  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 E G MILLER LERC/C HUNG 12-Chemistry

**NAG 1-58 Purdue University 3989**  
 STUDY OF METHOD TO PREDICT AND MEASURE TRANSMISSION OF SOUND THROUGH WALLS OF LIGHT AIRCRAFT  
*Period Obligations*  
 03/31/1980-06/30/1993 FY93: \$41,502 TOTAL: \$1,047,315  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R J BERNHARD LARC/R J SILCOX 41-Aero Engr  
 ....C A POWELL

**NAG 1-157 Purdue University 3990**  
 INTERACTIVE AIRCRAFT FLIGHT CONTROL AND AEROELASTIC STABILIZATION  
*Period Obligations*  
 02/26/1981-05/31/1994 FY93: \$46,163 TOTAL: \$681,906  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 T A WEISSHAAR LARC/R C SCOTT 41-Aero Engr  
 D K SCHMIDT

**NAG 1-372 Purdue University 3991**  
 COMPUTATIONAL UNSTEADY AERODYNAMICS AND AEROELASTICITY  
*Period Obligations*  
 06/15/1983-07/31/1993 FY93: \$0 TOTAL: \$506,611  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 H T YANG LARC/J W EDWARDS 41-Aero Engr  
 M WILLIAMS ....J T BATINA  
 T A WEISSHAAR

**NAG 1-854 Purdue University 3992**  
 HYPERVELOCITY SCRAMJET COMBUSTOR-NOZZLE ANALYSIS AND DESIGN  
*Period Obligations*  
 02/16/1988-12/31/1991 FY93: \$210 TOTAL: \$322,290  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 H D THOMPSON LARC/J P WEIDNER 46-Mech Engr  
 J D HOFFMAN ....E A MACKLEY

**NASA'S UNIVERSITY PROGRAM**  
**INDIANA (Continued)**

**NAG 1-1133** **Purdue University** **3993**  
A QUEIT FLOW LUDWIG TUBE FOR STUDY OF TRANSITION IN COMPRESSIBLE BOUNDARY LAYERS.  
*Period* *Obligations*  
05/07/1990-11/30/1993 FY93: \$17,000 TOTAL: \$72,341  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
S P SCHNEIDER LARC/T OWENS 41-Aero Engr

**NAG 1-1366** **Purdue University** **4000**  
RATE-DEPENDENT CONSTITUTIVE MODELS FOR HIGH TEMPERATURE POLYMER COMPOSITES UNDER CYCLIC LOADING  
*Period* *Obligations*  
01/17/1992-01/08/1994 FY93: \$51,000 TOTAL: \$98,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
C T SUN LARC/T S GATES 41-Aero Engr

**NAG 1-1173** **Purdue University** **3994**  
FREQUENCY DOMAIN ANALYSIS OF RANDOM LOADING OF CRACKED PANELS.  
*Period* *Obligations*  
08/06/1990-06/30/1993 FY93: \$0 TOTAL: \$35,343  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J F DOYLE LARC/S A RIZZI 41-Aero Engr  
....C A POWELL

**NAG 1-1473** **Purdue University** **4001**  
SHAPE OPTIMIZATION IN A DISTRIBUTED AND COLLABORATIVE MODELLING ENVIRONMENT  
*Period* *Obligations*  
01/22/1993-01/07/1994 FY93: \$30,560 TOTAL: \$30,560  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
C BAJAJ LARC/R E SMITH 22-Computer Science  
....J J LAMBIOTTE

**NAG 1-1201** **Purdue University** **3995**  
HOT FILM WALL SHEAR INSTRUMENTATION FOR COMPRESSIBLE BOUNDARY LAYER TRANSITION RESEARCH  
*Period* *Obligations*  
12/04/1990-09/30/1993 FY93: \$5,085 TOTAL: \$29,771  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
S P SCHNEIDER LARC/D L GRAY 41-Aero Engr  
....M A SCOTT

**NAG 1-1509** **Purdue University** **4002**  
EVALUATION OF SUBGRID-SCALE MODELS FOR LARGE EDDY SIMULATION OF COMPRESSIBLE TURBULENT FLOWS  
*Period* *Obligations*  
05/06/1993-11/05/1994 FY93: \$38,799 TOTAL: \$38,799  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
A BLAISDELL LARC/T B GATSKI 41-Aero Engr

**NAG 1-1258** **Purdue University** **3996**  
WORKSHOP ON TURBULENT MIXING AND THERMO-COMBUSTION EFFECTS  
*Period* *Obligations*  
04/25/1991-03/31/1993 FY93: \$0 TOTAL: \$3,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
S N MURPHY LARC/G B NORTHAM 41-Aero Engr

**NAG 1-1526** **Purdue University** **4003**  
FATIGUE CRACK GROWTH IN PANELS UNDER AEROACOUSTIC RANDOM LOADING NLPN 93-427  
*Period* *Obligations*  
08/03/1993-08/02/1994 FY93: \$7,304 TOTAL: \$7,304  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J F DOYLE LARC/S A RIZZI 41-Aero Engr

**NAG 1-1306** **Purdue University** **3997**  
SELECTING SENSORS AND ACTUATORS AND OPTIMIZING STRUCTURES FOR CONTROL DESIGN  
*Period* *Obligations*  
08/02/1991-07/31/1993 FY93: \$37,120 TOTAL: \$119,905  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R E SKELTON LARC/P A COOPER 42-Astro Engr  
L D PETERSON ....J R NEWSOM

**NAG 2-854** **Purdue University** **4004**  
HIGH-LIFT AERODYNAMICS  
*Period* *Obligations*  
07/16/1993-08/31/1993 FY93: \$29,783 TOTAL: \$29,783  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J P SULLIVAN ARC/L L ERICKSON 41-Aero Engr  
S P SCHNEIDER ....D J KOGA

**NAG 1-1316** **Purdue University** **3998**  
FATIGUE BEHAVIOR OF CONTINUOUS FIBER METAL MATRIX COMPOSITES  
*Period* *Obligations*  
08/15/1991-12/31/1993 FY93: \$0 TOTAL: \$69,303  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
B M HILLBERRY LARC/W S JOHNSON 46-Mech Engr  
....C A BIGELOW

**NAG 3-481** **Purdue University** **4005**  
DYNAMIC PERFORMANCE OF HIGH BYPASS RATIO TURBINE ENGINES WITH WATER INGESTION  
*Period* *Obligations*  
10/26/1983-07/27/1994 FY93: \$25,000 TOTAL: \$598,703  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
S N MURTHY LERC/R J STEINKE 41-Aero Engr

**NAG 1-1323** **Purdue University** **3999**  
MODELLING DAMAGE PROGRESSION IN COMPOSITE LAMINATE D STRUCTURES  
*Period* *Obligations*  
08/06/1991-07/31/1993 FY93: \$60,026 TOTAL: \$135,026  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
C T SUN LARC/J T WANG 46-Mech Engr  
....J M HOUSNER

**NAG 3-499** **Purdue University** **4006**  
AEROELASTICITY OF ADVANCED TURBOPROPS USING 3-D UNSTEADY AERODYNAMICS  
*Period* *Obligations*  
12/05/1983-12/31/1993 FY93: \$60,000 TOTAL: \$611,561  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
M H WILLIAMS LERC/G L STEFKO 41-Aero Engr  
....L J KIRALY

**NASA'S UNIVERSITY PROGRAM**  
**INDIANA (Continued)**

**NAG 3-552** **Purdue University** **4007**  
INFLUENCE OF FUEL THERMAL STABILITY ON ATOMIZER DESIGN  
AND PERFORMANCE  
*Period* *Obligations*  
09/14/1984-02/25/1993 FY93: \$2,217 TOTAL: \$527,386  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
A F LEFEBVRE LERC/R J ROLLBUHLER 46-Mech Engr  
...../R W NIEDZWIECKI

**NAG 3-1272** **Purdue University** **4014**  
ACTIVE NOISE CONTROL APPLICATION IN JET ENGINES  
*Period* *Obligations*  
04/30/1991-08/31/1993 FY93: \$0 TOTAL: \$84,595  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R SHOURESHI LERC/M M BRIGHT 46-Mech Engr

**NAG 3-656** **Purdue University** **4008**  
3-D UNSTEADY AERODYNAMIC AND AEROELASTICITY OF  
ADVANCED TURBOPROPS  
*Period* *Obligations*  
11/11/1985-10/31/1993 FY93: \$109,140 TOTAL: \$782,442  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
P S FLEETER LERC/D HOYNIK 41-Aero Engr

**NAG 3-1291** **Purdue University** **4015**  
SUPPORT OF THE 10TH NATIONAL SYMPOSIUM OF AIR BREA THING  
ENGINES  
*Period* *Obligations*  
07/31/1991-09/30/1994 FY93: \$4,995 TOTAL: \$9,992  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
S N MURTHY LERC/D N BOWDITCH 41-Aero Engr

**NAG 3-825** **Purdue University** **4009**  
A COMPENDIUM OF THE AERO-MECHANICS OF GAS TURBINE  
ENGINES  
*Period* *Obligations*  
12/17/1987-12/19/1992 FY93: \$255 TOTAL: \$286,152  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
S FLEETER LERC/F A NEWMAN 41-Aero Engr

**NAG 3-1295** **Purdue University** **4016**  
PURDUE UNIVERSITY MINORITY ENGINEERING PROGRAM  
*Period* *Obligations*  
11/13/1991-08/31/1994 FY93: \$50,000 TOTAL: \$145,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
M W BLALOCK LERC/D E LACY 46-Mech Engr  
...../D BOWDITCH

**NAG 3-943** **Purdue University** **4010**  
HOT GAS INJECTION  
*Period* *Obligations*  
12/05/1988-03/17/1993 FY93: \$20,000 TOTAL: \$340,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J P SULLIVAN LERC/J D HOLDEMAN 41-Aero Engr  
S N MURTHY

**NAG 3-1336** **Purdue University** **4017**  
CARBON DIOXIDE CONVERSION: AN INTERGRATED APPROACH TO  
IN SITU RESOURCE UTILI FOR A MANNED MARS MISS  
*Period* *Obligations*  
03/30/1992-03/31/1994 FY93: \$12,000 TOTAL: \$35,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
C P KUBIAK LERC/A F HEPP 12-Chemistry  
D A MORGENSTERN

**NAG 3-1038** **Purdue University** **4011**  
MEAS OF SPECIES CONCT AND TEMP IN AXISSYM FLAMES BY  
LASER-INDUCED FLOURESCENCE  
*Period* *Obligations*  
05/03/1989-11/13/1993 FY93: \$150,000 TOTAL: \$754,967  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
N M LAURENDEAU LERC/Y R HICKS 49-Engr, NEC

**NAG 5-1125** **Purdue University** **4018**  
GLOBAL CLOUD CLIMATOLOGIES VALIDATING NUMERICAL  
MODELS  
*Period* *Obligations*  
04/01/1989-09/30/1992 FY93: \$0 TOTAL: \$241,150  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
HARSHVARDHAN GSFC/R S FRASER 31-Atmos Sci

**NAG 3-1127** **Purdue University** **4012**  
RESEARCH TO DEV AN ADAPT SOLUTIO METH FOR VISC FLO WS  
THRU ADV COMPRESSOR AND TURBINE CASCADES  
*Period* *Obligations*  
01/12/1990-08/31/1993 FY93: \$0 TOTAL: \$115,893  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
W J USAB LERC/D P MILLER 41-Aero Engr

**NAG 5-1514** **Purdue University** **4019**  
COINCIDENT OBSERVATIONS BETWEEN GRO AND GROUND-BAS  
ED VHE GAMMA RAY TELESCOPES  
*Period* *Obligations*  
03/27/1991-10/31/1993 FY93: \$0 TOTAL: \$45,959  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
G H SEMBROSKI GSFC/J P NORRIS 11-Astronomy  
...../D A KNIFFEN

**NAG 3-1207** **Purdue University** **4013**  
ACTIVE SUPPRESSION OF AERODYNAMIC INSTABILITIES IN  
CENTRIFUGAL COMPRESSORS  
*Period* *Obligations*  
09/14/1990-02/08/1994 FY93: \$43,000 TOTAL: \$170,316  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
S FLEETER LERC/L F SCHUMANN 41-Aero Engr

**NAG 8-220** **Purdue University** **4020**  
MULTIOBJECTIVE SPACECRAFT CONTROL DESIGN  
*Period* *Obligations*  
04/03/1992-04/02/1994 FY93: \$0 TOTAL: \$64,710  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R E SKELTON MSFC/M L BUTLER 49-Engr, NEC  
...../A P BUKLEY

**NASA'S UNIVERSITY PROGRAM  
INDIANA (Continued)**

**NAG 8-764** **Purdue University** **4021**  
SYNOPTIC/PLANETARY SCALE INTERACTIONS AND BLOCKING  
OVER THE NORTH ATLANTIC OCEAN.  
*Period* *Obligations*  
02/21/1989-12/07/1992 FY93: \$0 TOTAL: \$315,335  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
P J SMITH MSFC/F ROBINSON 31-Atmos Sci  
...../J W KAUFMAN

**NAG 8-836** **Purdue University** **4022**  
OBSERVATIONAL AND MELLING STUDIES OF HEAT MOISTURE  
PRECIPITATION AND GLOBAL-SCALE CIRCULATION PATTERN  
*Period* *Obligations*  
07/20/1990-01/19/1994 FY93: \$0 TOTAL: \$294,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
D G VINCENT MSFC/J W KAUFMAN 31-Atmos Sci

**NAG 8-915** **Purdue University** **4023**  
CYCLONIC AND ANTICYCLONIC CIRCULATION SYSTEMS  
*Period* *Obligations*  
07/02/1992-07/01/1993 FY93: \$75,000 TOTAL: \$175,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
P J SMITH MSFC/J W KAUFMAN 31-Atmos Sci

**NAG 8-918** **Purdue University** **4024**  
SATELLITE MICROWAVE STUDIES OF EXPLOSIVE CYCLO- GENESIS  
*Period* *Obligations*  
07/06/1992-02/28/1994 FY93: \$55,000 TOTAL: \$110,001  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
G W PETTY MSFC/W M LAPENTA 31-Atmos Sci

**NAG 8-930** **Purdue University** **4025**  
HUBBLE CONTROL REDESIGN  
*Period* *Obligations*  
07/23/1992-07/31/1993 FY93: \$30,000 TOTAL: \$60,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R E SKELTON MSFC/A P BUKLEY 49-Engr, NEC  
K LIU ...../M L BUTLER

**NAG 8-1031** **Purdue University** **4026**  
RAINFALL RATE AND VERTICAL DISTRIBUTION OF DIABATIC  
HEATING COMPONENTS OVER TROPICAL OCEANS  
*Period* *Obligations*  
08/20/1993-08/31/1994 FY93: \$50,000 TOTAL: \$50,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
D G VINCENT MSFC/J W KAUFMAN 31-Atmos Sci

**NAG 9-48** **Purdue University** **4027**  
CHEM STUDIES OF METEORITES  
*Period* *Obligations*  
03/01/1993-03/01/1994 FY93: \$0 TOTAL: \$556,800  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
M E LIPSCHUTZ JSC/I D BROWNE 12-Chemistry

**NAG 9-580** **Purdue University** **4028**  
NATIONAL FACILITY FOR ACCELERATOR MASS SPECTROMETRY  
IN SUPPORT OF RESEARCH IN THE PLANETARY MATERIALS  
*Period* *Obligations*  
04/02/1992-03/01/1994 FY93: \$0 TOTAL: \$110,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
M E LIPSCHUTZ JSC/I D BROWNE 19-Phys Sci, NEC

**NAGW 925** **Purdue University** **4029**  
EARTH OBSERVATION  
*Period* *Obligations*  
08/01/1986-05/31/1994 FY93: \$125,000 TOTAL: \$1,786,688  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
C J JOHANNSEN HQ/A J TUYAHOV 39-Env Sci, NEC  
D A LANDGREBE ...../J E ESTES

**NAGW 1472** **Purdue University** **4030**  
APPLYING REMOTE SENSING AND GIS TECHNIQUES  
*Period* *Obligations*  
09/29/1988-09/30/1992 FY93: \$0 TOTAL: \$432,768  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
C J JOHANNSEN HQ/W HUNTRESS 39-Env Sci, NEC  
M F BAUMGARDNER

**NAGW 1819** **Purdue University** **4031**  
TOWARD DEVELOPING AN ANALYTICAL PROCEDURE OF DEFINING  
*Period* *Obligations*  
10/02/1989-10/31/1991 FY93: \$0 TOTAL: \$70,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
W J HINZE HQ/M BALTUCK 32-Geological Sci  
...../T J PIEPER

**NAGW 2329** **Purdue University** **4032**  
BIOMASS PRODUCTIVITY AND SUSTAINABILITY OF BIOREGIONAL  
NATIVE LIFE SUPPORT SYSTEMS  
*Period* *Obligations*  
04/11/1991-11/14/1993 FY93: \$1,030,000 TOTAL: \$2,954,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
C A MITCHELL HQ/R J WHITE 59-Life Sci, NEC

**NAGW 2984** **Purdue University** **4033**  
SSM/ OCEANIC RAINFALL VARIABILITY STUDIES  
*Period* *Obligations*  
03/20/1992-03/31/1994 FY93: \$47,965 TOTAL: \$90,548  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
G W PETTY HQ/J C DODGE 31-Atmos Sci  
...../R A SCHIFFER

**NAGW 3019** **Purdue University** **4034**  
LABORATORY STUDIES OF C4H2 AND NITRILE PHOTOCHEMISTRY  
*Period* *Obligations*  
03/20/1992-12/28/1994 FY93: \$50,000 TOTAL: \$100,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
T S ZWIER HQ/H C BRINTON 11-Astronomy

**NAGW 3150** **Purdue University** **4035**  
NAGW-3150/PURDUE UNIV/THE ANALYSIS OF GLOBAL CLOUD AND  
RADIATION DATA FOR THE STUDY OF CLIMATE  
*Period* *Obligations*  
08/10/1992-12/31/1993 FY93: \$96,405 TOTAL: \$146,405  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
HARSHVARDHAN HQ/J C DODGE 31-Atmos Sci  
...../R A SCHIFFER

**NAGW 3396** **Purdue University** **4036**  
CHEMICAL STUDIES OF METEORITES  
*Period* *Obligations*  
03/09/1993-02/28/1994 FY93: \$52,000 TOTAL: \$52,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
M E LIPSCHUTZ HQ/H C BRINTON 11-Astronomy

**NASA'S UNIVERSITY PROGRAM  
INDIANA (Continued)**

**NAGW 3460** **Purdue University** **4037**  
NATIONAL FACILITY FOR ACCELERATOR MASS SPECTROMETRY  
*Period* *Obligations*  
03/15/1993-02/28/1994 FY93: \$115,500 TOTAL: \$115,500  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
M LIPSCHUTZ HQ/J BOYCE 32-Geological Sci

**NCA 2-751** **Purdue University** **4044**  
ANALYSIS OF POLARIZED LIGHT FROM A SUNFLOWER CANOPY  
USING MULTIBAND RADIOMETER DATA  
*Period* *Obligations*  
09/09/1992-09/30/1993 FY93: \$21,390 TOTAL: \$21,390  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
L BIEHL ARC/V VANDERBILT 45-Elec Engr

**NAG10-90** **Purdue University** **4038**  
IMAGE PROCESSING SYSTEM FOR PLANT HEALTH MONITORING  
*Period* *Obligations*  
07/01/1991-07/01/1993 FY93: \$0 TOTAL: \$50,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
G E MILES KSC/W M KNOTT 51-Biological Sci

**NCC 3-128** **Purdue University** **4045**  
A PREDICTIVE MODEL FOR FAILURE PROPERTIES OF THERM OSET  
RESIN  
*Period* *Obligations*  
02/08/1989-01/31/1992 FY93: \$13 TOTAL: \$171,868  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J M CARUTHERS LERC/G D ROBERTS 47-Materials Engr  
.....K J BOWLES

**NAG10-93** **Purdue University** **4039**  
BIOPHEPICAL EVENTS DURING EARLY TRANSDUCTION OF  
MECHANICAL STRESS SIGNALS BY PLANTS  
*Period* *Obligations*  
09/11/1991-09/30/1993 FY93: \$0 TOTAL: \$120,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
C A MITCHELL KSC/W M KNOTT 51-Biological Sci

**NCC 3-246** **Purdue University** **4046**  
CHARACTERIZATION OF ORGANOCOPPERINDUM AND  
ORGANOCOPPE RAGALLIUM COMPOUNDS BY X-RAY  
CRYSTALLOGRAPHY  
*Period* *Obligations*  
03/02/1992-02/11/1994 FY93: \$1,500 TOTAL: \$7,500  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
P E FANWICK LERC/A F HEPP 12-Chemistry

**NAG10-112** **Purdue University** **4040**  
BIOPHEPICAL EVENTS DURING EARLY TRANSDUCTION OF  
MECHANICAL STRESS SIGNALS BY PLANTS  
*Period* *Obligations*  
08/07/1992-09/30/1993 FY93: \$0 TOTAL: \$26,309  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
M OKOS KSC/W M KNOTT 51-Biological Sci

**NGT 00-030-022** **Purdue University** **4047**  
NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period* *Obligations*  
10/18/1990-08/31/1992 FY93: \$0 TOTAL: \$44,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
M E BAUMGARDNER HQ/G ASRAR 32-Geological Sci

**NAS 3-26183** **Purdue University** **4041**  
THERAL DIFFUSIVITY TESTING  
*Period* *Obligations*  
01/16/1991-01/15/1992 FY93: \$1,599 TOTAL: \$30,400  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R E TAYLOR LERC/D ELLIS 47-Materials Engr

**NGT 00-040-025** **Purdue University** **4048**  
NATIONAL SPACE GRANT COLLEGE AND FELLOWSHIP PROGRA M  
*Period* *Obligations*  
04/25/1991-02/28/1994 FY93: \$152,000 TOTAL: \$452,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
A F GRANDT HQ/E T SCHWARTZ 99-Multi-Discip

**NAS 3-26940** **Purdue University** **4042**  
MEASUREMENT OF GRAPHITE FIBER REINFORCED MATRIX CO  
MPOSITES  
*Period* *Obligations*  
05/18/1993-05/17/1995 FY93: \$21,000 TOTAL: \$21,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R TAYLOR LERC/D ELLIS 47-Materials Engr  
.....S M VINCENT

**NGT 00-050-406** **Purdue University** **4049**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period* *Obligations*  
07/24/1989-09/30/1992 FY93: \$0 TOTAL: \$62,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
H T YANG HQ/F C OWENS 41-Aero Engr

**NGT 00-050-621** **Purdue University** **4050**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period* *Obligations*  
07/24/1990-08/31/1993 FY93: \$0 TOTAL: \$66,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
A ELMAGARMID HQ/J ALEXANDER 22-Computer Science

**NAS 5-31712** **Purdue University** **4043**  
EOS INVESTIGATION HIRIS PROCESSING AND ANALYSIS  
RESEARCH  
*Period* *Obligations*  
01/21/1992-12/14/2001 FY93: \$25,000 TOTAL: \$95,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
D A LANDGREBE GSFC/H W BLODGET 31-Atmos Sci

**NGT 00-050-634** **Purdue University** **4051**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period* *Obligations*  
07/01/1990-06/30/1993 FY93: \$0 TOTAL: \$66,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
C P KUBIAK HQ/F C OWENS 12-Chemistry

**NASA'S UNIVERSITY PROGRAM  
INDIANA (Continued)**

**NGT 00-050-708** **Purdue University** **4052**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
05/10/1991-06/30/1994 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
E N HOUSTIS HQ/F C OWENS 22-Computer Science

**NGT 00-050-711** **Purdue University** **4053**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
07/24/1991-06/30/1994 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J S BOLTON HQ/F C OWENS 46-Mech Engr

**NGT 00-050-717** **Purdue University** **4054**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
05/10/1991-06/30/1994 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
B HILLBERRY HQ/F C OWENS 46-Mech Engr

**NGT 00-050-779** **Purdue University** **4055**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
06/25/1991-06/30/1994 FY93: \$0 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
B BHARGAVA HQ/F C OWENS 22-Computer Science

**NGT 00-050-867** **Purdue University** **4056**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
03/03/1992-12/14/1993 FY93: \$22,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J L GRAY LERC/F MONTEGANI 45-Elec Engr

**NGT 00-050-919** **Purdue University** **4057**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
06/21/1992-08/31/1993 FY93: \$0 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
E H SPAFFORD HQ/J ALEXANDER 22-Computer Science

**NGT 00-050-937** **Purdue University** **4058**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
08/28/1992-01/31/1994 FY93: \$7,500 TOTAL: \$29,500  
*Prin. Invest. NASA Tech. Officer CASE Category*  
T J MOFFETT GSFC/G SOFFEN 13-Physics

**NGT 00-050-961** **Purdue University** **4059**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
06/22/1992-08/14/1994 FY93: \$22,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
H J SIEGEL HQ/J K ALEXANDER 45-Elec Engr

**NGT 00-050-963** **Purdue University** **4060**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
07/24/1992-06/30/1994 FY93: \$22,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
HARSHVARDHAN GSFC/G SOFFEN 11-Astronomy

**NGT 00-051-077** **Purdue University** **4061**  
GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
06/01/1993-06/30/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
G W PETTY HQ/G LESANE 31-Atmos Sci

**NGT 00-051-129** **Purdue University** **4062**  
GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
07/14/1993-07/31/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J M LONGUSKI JPL/C HIX 41-Aero Engr

**NGT 00-070-139** **Purdue University** **4063**  
NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
MINORITY FOCUS PROGRAM  
*Period Obligations*  
08/15/1989-06/30/1993 FY93: \$0 TOTAL: \$62,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
E R GRANT HQ/F C OWENS 12-Chemistry

**NGT 00-070-279** **Purdue University** **4064**  
NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
MINORITY FOCUS PROGRAM  
*Period Obligations*  
07/13/1992-07/31/1994 FY93: \$22,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
S FLEETER LERC/F MONTEGANI 46-Mech Engr

**NGT 00-070-313** **Purdue University** **4065**  
NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
MINORITY FOCUS PROGRAM  
*Period Obligations*  
06/29/1993-05/31/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R SKELTON HQ/D K RUSSELL 41-Aero Engr

**NGT 00-090-138** **Purdue University** **4066**  
GSRP/UMF  
*Period Obligations*  
09/26/1992-08/14/1994 FY93: \$12,000 TOTAL: \$24,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
M MARTINEZ HQ/D K RUSSELL 99-Multi-Discip

**NAG 3-1300** **Rose-Hulman Institute of Technology** **4067**  
CONTOURING OF A FREE-SURFACE OF OIL  
*Period Obligations*  
10/16/1991-05/31/1993 FY93: \$0 TOTAL: \$126,604  
*Prin. Invest. NASA Tech. Officer CASE Category*  
H P STAHL LERC/A D PLINE 13-Physics

**NASA'S UNIVERSITY PROGRAM**  
**INDIANA (Continued)**

**NAG 5-2176**      **Rose-Hulman Institute of Technology**      **4068**  
 CHARACTERIZATION OF INFRARED DETECTORS  
*Period*      *Obligations*  
 01/11/1993-01/14/1994      FY93: \$17,491      TOTAL: \$17,491  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
 R WAITE      GSFC/D GLENAR      11-Astronomy

**NAG 3-1398**      **University of Notre Dame**      **4075**  
 STUDY OF DISTURBANCES IN FLUID-FLUID FLOWS IN OPEN AND  
 CLOSED SYSTEMS  
*Period*      *Obligations*  
 12/01/1992-11/30/1993      FY93: \$99,687      TOTAL: \$99,687  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
 M J MCCREADY      LERC/J B MCQUILLEN      49-Engr, NEC  
 H C CHANG  
 D T LEIGHTON

**NCC 3-200**      **Saint Marys College**      **4069**  
 HIGH TEMPERATURE CERAMIC FLASH SENSOR INTERFACE ST  
 UDIES / 2510  
*Period*      *Obligations*  
 01/22/1991-09/13/1993      FY93: \$0      TOTAL: \$27,499  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
 J J BELLINA      LERC/M V ZELLER      13-Physics  
                      ....W D WILLIAMS

**NAG 5-557**      **University of Notre Dame**      **4076**  
 ERROR CONTROL TECHNIQUES FOR SATELLITE AND SPACE  
 COMMUNICATIONS  
*Period*      *Obligations*  
 06/01/1985-02/28/1994      FY93: \$53,000      TOTAL: \$494,820  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
 D COSTELLO      GSFC/W H MILLER      49-Engr, NEC  
                      ....J C MORAKIS

**NAG 3-746**      **University of Evansville**      **4070**  
 KINETIC THEORY MODEL FOR THE FLOW OF A SIMPLE GAS THRU  
 AND FROM A TWO-DIMENSIONAL NOZZLE  
*Period*      *Obligations*  
 09/30/1986-08/31/1993      FY93: \$0      TOTAL: \$117,138  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
 B RILEY      LERC/R R TACINA      42-Astro Engr  
                      ....E P BRAUNSCHEIDEL

**NAGW 3433**      **University of Notre Dame**      **4077**  
 RELATIVE ABUNDANCE OF ICES IN DISKS OF TAURI STARS  
*Period*      *Obligations*  
 03/03/1993-02/28/1994      FY93: \$15,000      TOTAL: \$15,000  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
 S C TEGLER      HQ/J A NUTH      19-Phys Sci, NEC

**NAG 2-745**      **University of Notre Dame**      **4071**  
 RELATIVE ABUNDANCE OF ICES IN DESKS OF PRE-MAIN-SE QUENCE  
 STARS: IMPLICATIONS FOR COMET FORMATION  
*Period*      *Obligations*  
 01/24/1992-09/30/1993      FY93: \$0      TOTAL: \$22,950  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
 S C TEGLER      ARC/C D LAUGHLIN      11-Astronomy  
 D A WEINTRAUB      ....C M GILLESPIE

**NCA 2-513**      **University of Notre Dame**      **4078**  
 STATIC AND DYNAMIC MEASUREMENTS OF THE VORTEX  
 STRUCTURE ON A SCALE MODEL OF THE HARV  
*Period*      *Obligations*  
 04/24/1990-05/31/1992      FY93: \$0      TOTAL: \$75,099  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
 R C NELSON      ARC/D FISHER      41-Aero Engr

**NAG 3-732**      **University of Notre Dame**      **4072**  
 EFFECTS OF NONUNIFORM FLOWS ON THE AERODYNAMICS AND  
 NOISE RADIATION OF ADVANCED TURBOPROPS  
*Period*      *Obligations*  
 05/27/1986-01/31/1994      FY93: \$138,107      TOTAL: \$531,084  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
 H M ATASSI      LERC/J F GROENEWEG      41-Aero Engr

**NCA 2-548**      **University of Notre Dame**      **4079**  
 DIGITAL DATA PROCESSING FOR FLIGHT FLUTTER TESTING  
*Period*      *Obligations*  
 08/01/1990-09/30/1992      FY93: \$190      TOTAL: \$59,803  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
 S M BATILL      ARC/M W KEHOE      46-Mech Engr

**NAG 3-1294**      **University of Notre Dame**      **4073**  
 INTERNATIONAL SYMPOSIUM ON UNSTEADY AERODYNAMICS A  
 EROELASTICITY AND AEROACOUSTICS IN TURBOMACH AND PROP  
*Period*      *Obligations*  
 08/02/1991-07/31/1992      FY93: \$0      TOTAL: \$5,000  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
 H M ATASSI      LERC/M E GOLDSTEIN      41-Aero Engr

**NCA 2-621**      **University of Notre Dame**      **4080**  
 STATIC AND DYNAMIC CONTROL OF FOREBODY/WING VORTIC AL  
 INTERACTIONS  
*Period*      *Obligations*  
 06/18/1991-09/30/1993      FY93: \$0      TOTAL: \$68,637  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
 A S ARENA      ARC/L B SCHIFF      41-Aero Engr  
 R C NELSON

**NAG 3-1335**      **University of Notre Dame**      **4074**  
 ANALYSIS OF THERMODYNAMICS AND FLUID MECHANICS OF PY  
 ROTECH MATERIASL WITH APPL TO THE NASA STAND INIT  
*Period*      *Obligations*  
 03/11/1992-04/19/1995      FY93: \$49,858      TOTAL: \$94,516  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
 J M POWERS      LERC/R M STUBBS      42-Astro Engr

**NCA 2-711**      **University of Notre Dame**      **4081**  
 TRANSONIC FLOW VISUALIZATION STUDY OF A FLUTTER EX  
 CITER  
*Period*      *Obligations*  
 04/17/1992-09/30/1992      FY93: \$0      TOTAL: \$18,144  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
 P F DUNN      ARC/L VERNON      41-Aero Engr  
 F O THOMAS

# **NASA'S UNIVERSITY PROGRAM** **INDIANA (Continued)**

**NCA 2-730 University of Notre Dame 4082**  
 STATIC AND DYNAMIC AERODYNAMIC CHARACTERISTICS OF A  
 SUBSCALE X-31 MODEL  
*Period Obligations*  
 07/14/1992-07/14/1994 FY93: \$39,912 TOTAL: \$79,912  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R C NELSON ARC/D FISHER 41-Aero Engr

**NCA 2-753 University of Notre Dame 4083**  
 INVESTIGATION AND APPLICATION OF TIME DOMAIN PARAM ETER  
 IDENTIF  
*Period Obligations*  
 10/23/1992-10/31/1994 FY93: \$36,444 TOTAL: \$36,444  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S M BATILL ARC/L VERNON 41-Aero Engr

**NCA 2-770 University of Notre Dame 4084**  
 MEASUREMENT OF FLUTTER EXCITER RESPONSE TO IMPOSED  
 STOCHASTIC FORCING IN TRANSONIC FLOW  
*Period Obligations*  
 12/02/1992-09/30/1993 FY93: \$31,393 TOTAL: \$31,393  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 P F DUNN ARC/L VERNON 41-Aero Engr  
 F O THOMAS

**NCC 1-177 University of Notre Dame 4085**  
 WIND TUNNEL DATA SYSTEM ACCURACY ASSESSMENT  
*Period Obligations*  
 05/25/1993-03/31/1994 FY93: \$30,000 TOTAL: \$30,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S M BATILL LARC/L E PUTNAM 41-Aero Engr  
 ....D E FULLER

**NCC 3-325 University of Notre Dame 4086**  
 ANALYSIS OF FLUID-SOLID RESPONSES IN PARTIALLY CON FINED  
 DETONATIONS  
*Period Obligations*  
 09/14/1993-09/12/1995 FY93: \$32,000 TOTAL: \$32,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J M POWERS LERC/R M STUBBS 42-Astro Engr

**NAG 5-1223 Valpariso University 4087**  
 ADP INFRARED STUDY OF TRANSITION LATE ASYMPATIC GIANT  
*Period Obligations*  
 07/27/1989-09/30/1993 FY93: \$33,800 TOTAL: \$90,200  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 B J HRIVNAK GSFC/D WEST 11-Astronomy

**NAG 8-232 Valpariso University 4088**  
 JOVE  
*Period Obligations*  
 03/17/1992-07/28/1994 FY93: \$29,700 TOTAL: \$88,700  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 B J HRIVNAK MSFC/F SIX 11-Astronomy  
 J CARISTI

## **IOWA**

**NAG 8-264 Drake University 4089**  
 JOVE  
*Period Obligations*  
 12/08/1992-05/31/1994 FY93: \$59,000 TOTAL: \$59,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A MARSTON MSFC/F SIX 99-Multi-Discip  
 K KOPECKY

**NAG 1-1129 Iowa State University 4090**  
 PROTOTYPE EDDY CURRENT SSME HEAT EXCHANGER TUBING  
 INSPECTION SYSTEM  
*Period Obligations*  
 04/04/1990-09/30/1993 FY93: \$0 TOTAL: \$200,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 W L LORD LARC/M NAMKUNG 45-Elec Engr

**NAG 1-1255 Iowa State University 4091**  
 TRAJECTORY OPTIMIZATION FOR THE NATIONAL AERO- SPACE  
 PLANE  
*Period Obligations*  
 05/06/1991-05/31/1993 FY93: \$0 TOTAL: \$58,234  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D LU LARC/D D MOERDER 42-Astro Engr  
 ....W T SUIT

**NAG 1-1267 Iowa State University 4092**  
 COMPUTATIONAL SIMULATION OF A ROTOR IN A WIND TUNNEL  
*Period Obligations*  
 05/06/1991-06/30/1993 FY93: \$0 TOTAL: \$22,738  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R G RAJAGOPALAN LARC/J D BERRY 41-Aero Engr  
 ....J W ELLIOTT

**NAG 1-1304 Iowa State University 4093**  
 OPTIMAL GUIDANCE AND MISSION DESIGN FOR EARTH-MARS  
 AEROCAPTURE  
*Period Obligations*  
 07/12/1991-07/09/1994 FY93: \$59,996 TOTAL: \$132,091  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 B L PIERSON LARC/W T SUIT 42-Astro Engr  
 ....D D MOERDER

**NAG 2-151 Iowa State University 4094**  
 PROPERTY DELEGATED  
*Period Obligations*  
 01/01/1982-12/31/1993 FY93: \$22,290 TOTAL: \$186,043  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J D IVERSON ARC/B F SMITH 19-Phys Sci, NEC  
 ....J B POLLACK

**NAG 2-715 Iowa State University 4095**  
 DENSE GAS AERODYNAMIC STUDIES IN A SHOCK TUBE  
*Period Obligations*  
 06/26/1991-12/31/1993 FY93: \$43,000 TOTAL: \$194,930  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 W J COOK ARC/D J KOGA 41-Aero Engr



**NASA'S UNIVERSITY PROGRAM**  
**IOWA (Continued)**

**NAG 2-722 Iowa State University 4096**  
SPACE LIFE-SUPPORT ENGINEERING PROGRAM  
*Period Obligations*  
07/03/1991-06/30/1993 FY93: \$0 TOTAL: \$206,231  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R C SEAGRAVE ARC/E L FORCE 43-Chem Engr  
....W E BERRY

**NAG 2-776 Iowa State University 4097**  
NUMERICAL COMPUTATION OF THE CHEMICALLY REACTING FLOW AROUND THE NATIONAL AERO-SPACE PLANE  
*Period Obligations*  
04/02/1992-01/31/1994 FY93: \$67,220 TOTAL: \$117,220  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J C TANNEHILL ARC/T A EDWARDS 41-Aero Engr  
....S L LAWRENCE

**NAG 3-917 Iowa State University 4098**  
DETECTION OF TRANSITION SEPARATED FLOW BEADES  
*Period Obligations*  
07/12/1988-12/20/1991 FY93: \$246 TOTAL: \$105,054  
*Prin. Invest. NASA Tech. Officer CASE Category*  
T H OKIISHI LERC/M D HATHAWAY 41-Aero Engr

**NAG 3-1075 Iowa State University 4099**  
ANALYSIS OF SUPERSONIC THROUGHFLOW FAN PHENOMENA  
*Period Obligations*  
09/22/1989-09/30/1993 FY93: \$0 TOTAL: \$54,317  
*Prin. Invest. NASA Tech. Officer CASE Category*  
T H OKIISHI LERC/L REID 41-Aero Engr

**NAG 3-1275 Iowa State University 4100**  
AERODYNAMIC MEASUREMENTS OF THE FLOW THROUGH A DIFFUSING S-DUCT  
*Period Obligations*  
05/07/1991-12/31/1992 FY93: \$0 TOTAL: \$59,085  
*Prin. Invest. NASA Tech. Officer CASE Category*  
T H OKIISHI LERC/B A REICHERT 41-Aero Engr

**NAG 3-1302 Iowa State University 4101**  
COMPARISON OF SLOW- AND FAST-RESPONSE INST FLOW FIELD MEASUREMENTS IN A TRANSONIC AXIAL-FLOW COMPRESSOR STAGE  
*Period Obligations*  
10/30/1991-12/09/1993 FY93: \$48,669 TOTAL: \$87,770  
*Prin. Invest. NASA Tech. Officer CASE Category*  
T H OKIISHI LERC/K L SUDER 41-Aero Engr

**NAG 3-1318 Iowa State University 4102**  
ALGORITHMS FOR NON-UNIFORM RATIONAL B-SPLINE SURFACE MODEL DEVELOPMENT  
*Period Obligations*  
01/27/1992-11/08/1993 FY93: \$77,281 TOTAL: \$107,279  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J H OLIVER LERC/D P MILLER 46-Mech Engr  
....A L EVANS

**NAG 3-1322 Iowa State University 4103**  
EXTRACTION OF ELASTIC CONSTANTS FROM ACOUSTO-ULTRASONIC SIGNALS IN THICK SECTION COMPOSITES  
*Period Obligations*  
01/27/1992-01/31/1994 FY93: \$20,000 TOTAL: \$37,500  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D K HSU LERC/A VARY 47-Materials Engr  
....H E KAUTZ

**NAG 3-1427 Iowa State University 4104**  
LOW-SPEED, MULTISTAGE, AXIAL-FLOW COMPRESSOR FLOW FIELD MEASUREMENTS  
*Period Obligations*  
12/30/1992-12/31/1993 FY93: \$55,067 TOTAL: \$55,067  
*Prin. Invest. NASA Tech. Officer CASE Category*  
T H OKIISHI LERC/F A NEWMAN 41-Aero Engr

**NAG 3-1481 Iowa State University 4105**  
NURBS-BASED GEOMETRY FOR INTEGRATED STRUCTURAL ANALYSIS  
*Period Obligations*  
04/16/1993-01/12/1994 FY93: \$25,184 TOTAL: \$25,184  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J H OLIVER LERC/S A THORP 46-Mech Engr  
....A L EVANS

**NAG 5-355 Iowa State University 4106**  
DIAGNOSTIC ANALYSIS OF DIABATIC HEATING AND MAINTENANCE OF THE THERMAL FIELD IN THE SOUTHERN HEMISPHERE  
*Period Obligations*  
08/01/1983-12/31/1994 FY93: \$155,000 TOTAL: \$514,140  
*Prin. Invest. NASA Tech. Officer CASE Category*  
T C CHEN GSFC/J W PFAENDTNER 31-Atmos Sci

**NAG 5-707 Iowa State University 4107**  
OBSERVATIONS OF THE BRIGHTEST NORMAL M-TYPE MICRA VARIABLES  
*Period Obligations*  
09/01/1988-01/31/1994 FY93: \$12,000 TOTAL: \$199,947  
*Prin. Invest. NASA Tech. Officer CASE Category*  
L A WILLSON GSFC/Y KONDO 11-Astronomy  
E BRUGEL  
N EVANS

**NAG 5-1060 Iowa State University 4108**  
ANALYSIS OF SATELLITE DERIVED OZONE AND WATER VAPOR MEASUREMENTS  
*Period Obligations*  
07/15/1988-09/30/1992 FY93: \$10 TOTAL: \$90,294  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J L STANFORD GSFC/M L WU 31-Atmos Sci

**NAG 5-1519 Iowa State University 4109**  
DATA VALIDATION FOR TOTAL OZONE MAPPING SPECTROMETER FOR SMALL-CLASS EXPLORER  
*Period Obligations*  
04/02/1991-05/14/1994 FY93: \$58,906 TOTAL: \$156,743  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J L STANFORD GSFC/A J KRUEGER 31-Atmos Sci  
....M R SCHOEBERL

**NASA'S UNIVERSITY PROGRAM**  
**IOWA (Continued)**

**NAG 5-1655 Iowa State University 4110**  
THE FORMATION PROCESS OF THE HE I LAMBDA0830 LINE IN COOL GIANT STARS  
*Period* *Obligations*  
06/24/1991-06/30/1993 FY93: \$0 TOTAL: \$9,600  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
D G LUTTERMOSER GSFC/R PETRE 11-Astronomy

**NAGW 2582 Iowa State University 4117**  
NAGW-2582/IOWA STATE UNIV/ANALYSIS OF STRATOSPHERIC TRACE GAS SATELLITE MEASUREMENTS  
*Period* *Obligations*  
07/25/1991-03/31/1994 FY93: \$60,000 TOTAL: \$172,736  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J L STANFORD HQ/J A KAYE 31-Atmos Sci  
...../R E MURPHY

**NAG 5-1777 Iowa State University 4111**  
FLOURESCENT CLUES TO THE ATMOSPHERIC STRUCTURE OF COOL, VARIABLE STARS  
*Period* *Obligations*  
09/10/1991-09/14/1993 FY93: \$7,000 TOTAL: \$19,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
GSFC/D WEST 11-Astronomy  
D G LUTTERMOSER

**NAGW 2601 Iowa State University 4118**  
MICROSTRUCTURAL DEVELOPMENT DURING DIRECTIONAL SOLIDIFICATION AND PERITECTIC ALLOYS  
*Period* *Obligations*  
08/22/1991-09/30/1992 FY93: \$0 TOTAL: \$150,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
T LOGRASSO HQ/R A SCHMITZ 19-Phys Sci, NEC  
...../C WARDROP

**NAG 5-2047 Iowa State University 4112**  
CORRELATED OBSERVATIONS OF SUPERLUMINAL QUASARS  
*Period* *Obligations*  
07/22/1992-09/30/1993 FY93: \$50,228 TOTAL: \$62,998  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R C LAMB GSFC/J P NORRIS 11-Astronomy  
...../N WHITE

**NAGW 2993 Iowa State University 4119**  
SYNOPTIC CLIMATOLOGY OF SPACE BASED WATER VAPOR MEASUREMENTS  
*Period* *Obligations*  
03/24/1992-01/31/1994 FY93: \$63,466 TOTAL: \$133,643  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
W J GUTOWSKI HQ/J C DODGE 31-Atmos Sci  
...../R A SCHIFFER

**NAG 5-2286 Iowa State University 4113**  
HIGH PERFORMANCE MORPHOLOGICAL FILTERING OF CIRRHUS EMISSION FORM INFRARED IMAGES  
*Period* *Obligations*  
06/16/1993-06/30/1994 FY93: \$27,729 TOTAL: \$27,729  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
P N APPLETON GSFC/J A PEDELTY 11-Astronomy

**NAGW 3243 Iowa State University 4120**  
NAGW-3243/IOWA STATE UNIV/DEVELOPMENT OF A HYPERCARD TEACHING AID  
*Period* *Obligations*  
10/29/1992-07/31/1993 FY93: \$5,000 TOTAL: \$5,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
P L WILSON HQ/L LAPIANA 11-Astronomy  
...../G P NEWTON

**NAG 8-963 Iowa State University 4114**  
MICROSTRUCTURAL DEVELOPMENT  
*Period* *Obligations*  
06/23/1993-06/30/1994 FY93: \$100,000 TOTAL: \$100,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
T A LOGRASSO MSFC/S D COBB 19-Phys Sci, NEC

**NCA 2-486 Iowa State University 4121**  
STUDY INFLUENCE OF SURFACE BLOWING ON FLOW FIELD OF SPACE SHUTTLE IN ASCENT  
*Period* *Obligations*  
02/13/1990-02/14/1992 FY93: \$0 TOTAL: \$49,890  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R G RAJAGOPALAN ARC/P G BUNING 41-Aero Engr

**NAGW 1364 Iowa State University 4115**  
MECHANISMS AND IMPLICATION OF MASS LOSS ASSOCIATED  
*Period* *Obligations*  
07/26/1988-02/28/1994 FY93: \$0 TOTAL: \$384,300  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
L A WILLSON HQ/G C CLAYTON 13-Physics  
...../W V JONES

**NCA 2-526 Iowa State University 4122**  
COMPUTATION OF TURBULENT FLOWFIELDS FOR THE STRATOSPHERIC OBSERVATORY FOR INFRARED ASTRONOMY  
*Period* *Obligations*  
06/01/1990-05/31/1992 FY93: \$0 TOTAL: \$79,988  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R H PLETCHER ARC/W R VAN DALSEM 46-Mech Engr

**NAGW 2157 Iowa State University 4116**  
NAGW-2157/IOWA STATE UNIV/THEORETICAL MODELS OF COUPLING GALAXIES  
*Period* *Obligations*  
07/03/1990-05/31/1993 FY93: \$0 TOTAL: \$117,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
C MARCELL HQ/C S LEVY 11-Astronomy

**NCA 2-541 Iowa State University 4123**  
COMPUTATIONAL SEMULATION OF A MULTISTAGE TURBOMACHINERY USING PARALLEL COMPUTERS  
*Period* *Obligations*  
08/08/1990-07/14/1992 FY93: \$0 TOTAL: \$25,025  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R G RAJAGOPALAN ARC/M M RAI 41-Aero Engr

**NASA'S UNIVERSITY PROGRAM**  
**IOWA (Continued)**

**NCA 2-732 Iowa State University 4124**  
 A SOLUTION ADAPTIVE HYBRID STRUCTURED-UNSTRUCTURED  
 GRID METHOD FOR UNSTEADY TURBOMACHINERY FLOW COMP  
*Period Obligations*  
 08/06/1992-01/14/1993 FY93: \$0 TOTAL: \$13,090  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R G RAJAGOPALAN ARC/D KWAK 41-Aero Engr

**NGT 00-030-008 Iowa State University 4125**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
 11/19/1990-08/31/1993 FY93: \$0 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R W TURNER HQ/G ASRAR 39-Env Sci, NEC

**NGT 00-040-018 Iowa State University 4126**  
 NATIONAL SPACE GRANT COLLEGE AND FELLOWSHIP PROGRA M  
*Period Obligations*  
 03/14/1990-02/28/1993 FY93: \$373,925 TOTAL: \$1,293,925  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 W W SANDERS HQ/E SCHWARTZ 99-Multi-Discip

**NGT 00-050-441 Iowa State University 4127**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 08/14/1989-12/31/1992 FY93: \$0 TOTAL: \$73,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R G HINDMAN HQ/F C OWENS 41-Aero Engr

**NGT 00-050-633 Iowa State University 4128**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 08/30/1990-01/31/1994 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R H FLETCHER HQ/F C OWENS 46-Mech Engr

**NGT 00-050-637 Iowa State University 4129**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 09/21/1990-06/30/1993 FY93: \$0 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 B L PIERSON HQ/F C OWENS 41-Aero Engr

**NGT 00-050-757 Iowa State University 4130**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 10/23/1991-06/30/1994 FY93: \$22,000 TOTAL: \$64,740  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 T C CHEN HQ/J ALEXANDER 31-Atmos Sci  
 W J GUTOWSKI

**NGT 00-050-882 Iowa State University 4131**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 05/06/1992-06/30/1994 FY93: \$22,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A FLATAU MSFC/F SIX 46-Mech Engr

**NGT 00-050-949 Iowa State University 4132**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 08/04/1992-08/23/1994 FY93: \$22,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R H PLETCHER LERC/F MONTEGANI 46-Mech Engr

**NGT 00-050-991 Iowa State University 4133**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 08/11/1992-07/31/1994 FY93: \$22,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 W LORD LARC/E PRIOR 45-Elec Engr

**NGT 00-051-004 Iowa State University 4134**  
 NGT-51004/IOWA STATE UNIV/GRADUATE STUDENT RESEARCHERS  
 PROGRAM  
*Period Obligations*  
 08/18/1992-06/30/1993 FY93: \$0 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 W LORD LARC/E PRIOR 45-Elec Engr

**NGT 00-051-009 Iowa State University 4135**  
 NGT-51009/IOWA STATE UNIV/GRADUATE STUDENT RESEARCHERS  
 PROGRAM  
*Period Obligations*  
 09/16/1992-07/31/1994 FY93: \$20,149 TOTAL: \$27,649  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A ROTHMAYER LARC/E PRIOR 41-Aero Engr

**NGT 00-051-020 Iowa State University 4136**  
 GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 05/14/1993-06/30/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J P BASART GSFC/G SOFFEN 45-Elec Engr

**NGT 00-070-305 Iowa State University 4137**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
 MINORITY FOCUS PROGRAM  
*Period Obligations*  
 05/20/1993-05/31/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 P LU HQ/D K RUSSELL 41-Aero Engr

**NGT 00-070-347 Iowa State University 4138**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
 MINORITY FOCUS PROGRAM  
*Period Obligations*  
 08/12/1993-08/15/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 B PIERSON HQ/D K RUSSELL 41-Aero Engr

**NGT 00-090-123 Iowa State University 4139**  
 UNDERGRADUATE STUDENT RESEARCHERS PROGRAM (UMF)  
*Period Obligations*  
 09/26/1992-08/14/1993 FY93: \$12,000 TOTAL: \$12,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A CAMPBELL HQ/D K RUSSELL 99-Multi-Discip

# NASA'S UNIVERSITY PROGRAM

## IOWA (Continued)

**NAG 2-571 University of Iowa 4140**  
 CONTINUING ANALYSIS AND INTERPRETATION OF DATA FROM PIONEER 10 AND PIONEER 11  
*Period Obligations*  
 05/23/1989-07/31/1994 FY93: \$177,961 TOTAL: \$685,124  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J A VAN ALLEN ARC/L E LASHER 11-Astronomy  
 ....R O FIMMEL

**NAG 5-1120 University of Iowa 4147**  
 STUDY OF PLASMA WAVES EARTH'S MAGNETOSPHERE AND GEOMAGNETIC  
*Period Obligations*  
 02/01/1989-01/31/1993 FY93: \$0 TOTAL: \$40,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R ANDERSON GSFC/S A CURTIS 13-Physics  
 ....M A ACUNA

**NAG 3-893 University of Iowa 4141**  
 SUPPORTED TRANS METAL AND METAL OXIDE CATALYSTS FOR PARA-TO ORTHO HYDROGEN  
*Period Obligations*  
 03/29/1988-02/10/1993 FY93: \$13,000 TOTAL: \$404,344  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D P EYMAN LERC/G S WILLIAMSON 12-Chemistry  
 ....J A HEMMINGER

**NAG 5-1174 University of Iowa 4148**  
 STRUCTURE OF CIRCUMSTELLAR SHELLS  
*Period Obligations*  
 08/01/1989-01/31/1992 FY93: \$0 TOTAL: \$50,647  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J D FIX GSFC/D WEST 11-Astronomy

**NAG 5-295 University of Iowa 4142**  
 MEASUREMENT OF LOW ENERGY ELECTRONS AND PROTONS IN THE EARTH'S MAGNETOSPHERE AND THE INTERPLANETARY M  
*Period Obligations*  
 02/01/1983-01/31/1994 FY93: \$50,000 TOTAL: \$632,003  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 L A FRANK GSFC/G BULLOCK 11-Astronomy

**NAG 5-1483 University of Iowa 4149**  
 PHYSICS OF MAGNETOSPHERIC BOUNDARY LAYERS  
*Period Obligations*  
 11/26/1990-05/31/1994 FY93: \$145,000 TOTAL: \$747,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 I H CAIRNS GSFC/T J BIRMINGHAM 13-Physics

**NAG 5-310 University of Iowa 4143**  
 RESEARCH RELATIVE TO THE DYNAMICS EXPLORE PLOSMOTE ONE INSTRUMENT EXPERIMENT  
*Period Obligations*  
 04/15/1983-06/30/1994 FY93: \$95,000 TOTAL: \$2,758,649  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D A GURNETT GSFC/G D BULLOCK 19-Phys Sci, NEC  
 ....R A HOFFMAN

**NAG 5-1543 University of Iowa 4150**  
 PLASMA SHEET DYNAMICS IN THE EARTH'S MAGNETOSPHERE (SUBSTORM TASK)  
*Period Obligations*  
 04/17/1991-04/30/1994 FY93: \$67,200 TOTAL: \$190,900  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 C HUANG GSFC/G D BULLOCK 19-Phys Sci, NEC

**NAG 5-483 University of Iowa 4144**  
 GLOBAL AURORA IMAGING  
*Period Obligations*  
 11/01/1984-01/31/1993 FY93: \$0 TOTAL: \$3,624,815  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 L A FRANK GSFC/G D BULLOCK 19-Phys Sci, NEC  
 ....R A HOFFMAN

**NAG 5-1926 University of Iowa 4151**  
 WAVES IN SPACE PLASMAS (WISP) CO-INVESTIGATOR GRANT  
*Period Obligations*  
 03/03/1992-03/14/1994 FY93: \$40,000 TOTAL: \$90,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 W CALVERT GSFC/R F BENSON 19-Phys Sci, NEC

**NAG 5-1093 University of Iowa 4145**  
 PLASMA WAVES AND WAVE PARTICLES INTERACTION EARTH'S MAGNETOSPHERE  
*Period Obligations*  
 11/01/1988-01/31/1993 FY93: \$22,000 TOTAL: \$626,214  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D A GURNETT GSFC/G BULLOCK 39-Env Sci, NEC  
 R R ANDERSON

**NAG 5-2084 University of Iowa 4152**  
 A STATISTICAL FRAMEWORK FOR UTILIZATION OF RADAR DATA IN TROPICAL RAINFALL MEASURING MISSION  
*Period Obligations*  
 08/25/1992-06/30/1994 FY93: \$65,000 TOTAL: \$115,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 W F KRAJEWSKI GSFC/O W THIELE 31-Atmos Sci  
 J A SMITH  
 V CHANDRASEKAR

**NAG 5-1109 University of Iowa 4146**  
 ISEE 1 AND 2 MAGNETOSPHERIC AND INTERPLANETARY PLASMA INSTRUMENTS  
*Period Obligations*  
 11/01/1988-12/31/1993 FY93: \$35,000 TOTAL: \$650,680  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 L A FRANK GSFC/G BULLOCK 19-Phys Sci, NEC  
 C Y HUANG

**NAG 5-2102 University of Iowa 4153**  
 COMPREHENSIVE ANALYSIS OF ELECTRON CONICAL DISTRIBUTIONS FROM MULTI-SATELLITE DATABASES  
*Period Obligations*  
 09/18/1992-04/30/1994 FY93: \$50,000 TOTAL: \$50,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J D MENIETTI GSFC/G D BULLOCK 19-Phys Sci, NEC

**NASA'S UNIVERSITY PROGRAM**  
**IOWA (Continued)**

**NAG 5-2231 University of Iowa 4154**  
METHODOLOGY FOR 3D QUADRATURE OF GGS/HYDRA DATA IN  
CLUDING CALIBRATION DATA, SPACECRAFT POTENTIAL.  
*Period Obligations*  
05/10/1993-02/14/1994 FY93: \$81,000 TOTAL: \$81,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J D SCUDDER GSFC/M H ACUNA 13-Physics  
...../D N BAKER

**NAG 5-2346 University of Iowa 4155**  
GEOTAIL MCA PLASMA WAVE DATA ANALYSIS  
*Period Obligations*  
08/09/1993-08/14/1994 FY93: \$163,000 TOTAL: \$163,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R R ANDERSON GSFC/M ACONA 13-Physics

**NAG 8-292 University of Iowa 4156**  
PLASMA DUST CRYSTALLIZATION  
*Period Obligations*  
08/04/1993-04/09/1994 FY93: \$108,024 TOTAL: \$108,024  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J GOREE MSFC/D NOEVER 11-Astronomy

**NAGW 1539 University of Iowa 4157**  
STUDY OF PLASMA WAVES ASSOCIATED W/ SPACELAB 2  
*Period Obligations*  
12/06/1988-09/30/1993 FY93: \$0 TOTAL: \$93,310  
*Prin. Invest. NASA Tech. Officer CASE Category*  
W S KURTH HQ/G K PARKS 13-Physics  
...../T W PERRY

**NAGW 1594 University of Iowa 4158**  
A STUDY OF SHOCK-ASSOCIATED MAGNETOHYDRODYNAMIC  
WAVES  
*Period Obligations*  
12/27/1988-12/31/1993 FY93: \$50,000 TOTAL: \$220,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
S R SPANGLER HQ/M M MELLOTT 13-Physics  
...../W V JONES

**NAGW 1631 University of Iowa 4159**  
SPECIAL TOPICS IN AURORAL AND IONOSPHERE PHYSICS  
*Period Obligations*  
02/23/1989-03/31/1993 FY93: \$0 TOTAL: \$61,500  
*Prin. Invest. NASA Tech. Officer CASE Category*  
L A FRANK HQ/G K PARKS 13-Physics  
...../T W PERRY

**NAGW 1653 University of Iowa 4160**  
OBSERVATIONAL TEST OF THE THERMAL CATASTROPHE MODEL  
*Period Obligations*  
02/23/1989-03/31/1994 FY93: \$65,000 TOTAL: \$307,300  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J G LYON HQ/M M MELLOTT 13-Physics  
...../T W PERRY

**NAGW 1668 University of Iowa 4161**  
DUSTY PLASMAS IN SPACE  
*Period Obligations*  
02/24/1989-12/31/1992 FY93: \$0 TOTAL: \$147,500  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J G LYON HQ/M MELLOTT 13-Physics  
...../T W PERRY

**NAGW 1739 University of Iowa 4162**  
EARTH'S MAGNETOSPHERE AT HIGH LATITUDE AND LARGE RADIAL  
DIST.  
*Period Obligations*  
05/16/1989-11/30/1992 FY93: \$0 TOTAL: \$181,355  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J A VAN ALLEN HQ/M M MELLOTT 31-Atmos Sci  
...../T W PERRY

**NAGW 1791 University of Iowa 4163**  
LABORATORY STUDIES OF PLASMA DOUBLE LAYERS IN  
NON-UNIFORM  
*Period Obligations*  
07/07/1989-09/30/1993 FY93: \$0 TOTAL: \$144,165  
*Prin. Invest. NASA Tech. Officer CASE Category*  
M D'ANGELO HQ/M M MELLOTT 13-Physics  
...../T W PERRY

**NAGW 2040 University of Iowa 4164**  
NAGW-2040/UNIV OF IOWA/ELECTRON PLASMA WAVES IN  
PLANETARY FORESHOCKS  
*Period Obligations*  
04/30/1990-03/31/1994 FY93: \$60,000 TOTAL: \$217,500  
*Prin. Invest. NASA Tech. Officer CASE Category*  
I H CAIRNS HQ/M M MELLOTT 13-Physics  
...../T PERRY

**NAGW 2098 University of Iowa 4165**  
NAGW-2098/UNIV OF IOWA/MASS AND ENERGY TRANSPORT IN  
THE IO PLASMA TORUS  
*Period Obligations*  
05/14/1990-02/28/1992 FY93: \$0 TOTAL: \$96,900  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R A SMITH HQ/J T BERGSTRAHL 11-Astronomy

**NAGW 2428 University of Iowa 4166**  
TRANSPORT AND CHEMICAL CHARACTERISTICS OF TROPOSPH  
ERIC TRACE GAS CYCLES IN EAST ASIA  
*Period Obligations*  
05/09/1991-03/31/1994 FY93: \$79,750 TOTAL: \$241,516  
*Prin. Invest. NASA Tech. Officer CASE Category*  
G R CARMICHAEL HQ/J A KAYE 31-Atmos Sci  
...../R E MURPHY

**NAGW 2626 University of Iowa 4167**  
NAGW-2626/UNIV IOWA/MHD STUDIES OF PLANETARY MAGNE  
TOSHEATH FLOWS  
*Period Obligations*  
08/19/1991-05/31/1993 FY93: \$63,600 TOTAL: \$123,600  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J G LYON HQ/M M MELLOTT 13-Physics  
...../J D BOHLIN

**NAGW 2847 University of Iowa 4168**  
AN OBSERVATIONAL STUDY OF THE EARTH'S PLASMA SHEET  
*Period Obligations*  
01/15/1992-03/31/1994 FY93: \$0 TOTAL: \$55,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
C HUANG HQ/E C WHIPPLE 13-Physics  
...../J D BOHLIN

**NASA'S UNIVERSITY PROGRAM**  
**IOWA (Continued)**

**NAGW 3126 University of Iowa 4169**  
PLASMA DUST EXPERIMENTS  
*Period Obligations*  
07/14/1992-07/31/1994 FY93: \$50,000 TOTAL: \$100,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J A GOREE HQ/J A NUTH 19-Phys Sci, NEC

**NAGW 3143 University of Iowa 4170**  
PLASMA AND RADIO WAVES FROM NEPTUNE; SOURCE MECHANISMS AND PROPAGATION  
*Period Obligations*  
07/24/1992-01/14/1994 FY93: \$38,000 TOTAL: \$76,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J D MENIETTI HQ/H C BRINTON 19-Phys Sci, NEC

**NAGW 3461 University of Iowa 4171**  
NAGW-3461/UNIV IOWA/PLASMA WAVES AND RADIATION GENERATED NEAR THE TERMINATION SHOCK  
*Period Obligations*  
03/26/1993-04/30/1994 FY93: \$38,000 TOTAL: \$38,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
I CAIRNS HQ/W V JONES 13-Physics  
....G L WITHBROE

**NAGW 3576 University of Iowa 4172**  
MULTI ION, MULTI EVENT TEST OF ION CYCLOTRON RESONANCE HEATING  
*Period Obligations*  
05/05/1993-02/28/1994 FY93: \$41,500 TOTAL: \$41,500  
*Prin. Invest. NASA Tech. Officer CASE Category*  
A M PERSOON HQ/E C WHIPPLE 13-Physics  
....G L WITHBROE

**NAS 5-26857 University of Iowa 4173**  
DEFINITION PHASE INVESTIGATION OF PLASMA WAVES FOR THE OPEN GEOMAGNETIC TAIL LABORATORY  
*Period Obligations*  
06/07/1992-02/28/1994 FY93: \$142,608 TOTAL: \$2,796,978  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D A GURNETT GSFC/F WAINSCOTT 13-Physics

**NAS 5-26858 University of Iowa 4174**  
DEFINITION PHASE STUDY - GEOTAIL-CPA  
*Period Obligations*  
05/24/1982-02/28/1994 FY93: \$435,000 TOTAL: \$9,824,989  
*Prin. Invest. NASA Tech. Officer CASE Category*  
L A FRANK GSFC/F WAINSCOTT 11-Astronomy

**NAS 5-30316 University of Iowa 4175**  
MISSION OPS AND DATA ANALYSIS VISIBLE IMAGING INVESTIGATION  
*Period Obligations*  
02/06/1989-05/21/1996 FY93: \$1,716,500 TOTAL: \$11,823,879  
*Prin. Invest. NASA Tech. Officer CASE Category*  
L FRANK GSFC/J GALLOWAY 13-Physics

**NAS 5-30371 University of Iowa 4176**  
PLASMA WAVE INVESTIGATION PHASE C/D ISTP POLAR MISSION  
*Period Obligations*  
12/29/1988-06/30/1994 FY93: \$685,900 TOTAL: \$5,583,360  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D A GURNETT GSFC/D CROSBY 13-Physics

**NAS 5-30730 University of Iowa 4177**  
ISTP PROJECT'S WIDEBAND PLASMA WAVE INVESTIGATION  
*Period Obligations*  
01/30/1990-12/31/1997 FY93: \$778,000 TOTAL: \$3,346,487  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D GURNETT GSFC/J L CHRISTENSEN 31-Atmos Sci

**NAS 5-30941 University of Iowa 4178**  
PRESERVE ARCHIVE AND TRANSFER SPACECRAFT DATA  
*Period Obligations*  
11/01/1990-06/30/1992 FY93: \$0 TOTAL: \$89,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
GSFC/J GREEN 31-Atmos Sci

**NCC 3-290 University of Iowa 4179**  
TRANSPORT PHENOMENA DURING EQUIAXED SOLIDIFICATION OF ALLOYS  
*Period Obligations*  
01/16/1993-01/07/1994 FY93: \$64,377 TOTAL: \$64,377  
*Prin. Invest. NASA Tech. Officer CASE Category*  
C BECKERMAN LERC/H C DEGROH 47-Materials Engr  
H C DEGROH

**NGT 00-030-030 University of Iowa 4180**  
NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
11/02/1990-08/31/1993 FY93: \$0 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
Y SUNWOO HQ/G ASRAR 31-Atmos Sci

**NGT 00-030-160 University of Iowa 4181**  
NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
08/24/1993-08/31/1996 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
W F KRAJEWSKI HQ/G ASRAR 39-Env Sci, NEC  
....D M BUTLER

**NGT 00-030-192 University of Iowa 4182**  
NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
09/01/1993-08/31/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
W F KRAJEWSKI HQ/G ASRAR 31-Atmos Sci  
....D M BUTLER

**NGT 00-030-218 University of Iowa 4183**  
NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
09/03/1993-08/31/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
T F SMITH HQ/G ASRAR 31-Atmos Sci  
....D M BUTLER

# **NASA'S UNIVERSITY PROGRAM** **IOWA (Continued)**

**NGT 00-050-362 University of Iowa 4184**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
08/08/1988-03/31/1993 FY93: \$0 TOTAL: \$47,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J ARORA HQ/F C OWENS 49-Engr, NEC

**NGT 00-050-976 University of Iowa 4185**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
09/16/1992-07/31/1994 FY93: \$23,500 TOTAL: \$34,500  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J S ARORA LARC/E PRIOR 46-Mech Engr

**NAG 8-265 University of Northern Iowa 4186**  
JOVE  
*Period Obligations*  
12/30/1992-05/31/1993 FY93: \$29,208 TOTAL: \$29,208  
*Prin. Invest. NASA Tech. Officer CASE Category*  
T A HOCKEY MSFC/F SIX 31-Atmos Sci  
D J WIENS

## **KANSAS**

**NAG 8-215 Emporia State University 4187**  
JOVE  
*Period Obligations*  
01/28/1992-07/15/1994 FY93: \$26,304 TOTAL: \$88,400  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J S ABER MSFC/F SIX 32-Geological Sci  
J L BALLESTER

**NAG 1-1503 Kansas State University 4188**  
CRACK GROWTH PREDICTION METHODOLOGY FOR MULTI-SITE  
DAMAGE: LAYERED ANALYSIS AND GROWTH NLPN 93-210  
*Period Obligations*  
04/12/1993-11/11/1993 FY93: \$15,000 TOTAL: \$15,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D V SWENSON LARC/J C NEWMAN 46-Mech Engr  
....C E HARRIS

**NAG 8-246 Kansas State University 4189**  
JOVE  
*Period Obligations*  
08/20/1992-07/31/1993 FY93: \$0 TOTAL: \$23,180  
*Prin. Invest. NASA Tech. Officer CASE Category*  
B S SPOONER MSFC/F SIX 51-Biological Sci

**NAG 9-471 Kansas State University 4190**  
ESTABLISH NEW GRANT  
*Period Obligations*  
08/27/1990-01/01/1992 FY93: \$0 TOTAL: \$15,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
C S LAYNE JSC/S H GOLDSTEIN 56-Medical Sciences

**NAGW 1111 Kansas State University 4191**  
PHOTOGEOLOGIC STUDY OF SELECTED FEATURES ON MARS  
*Period Obligations*  
06/01/1987-01/17/1993 FY93: \$0 TOTAL: \$407,111  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J R UNDERWOOD HQ/D H SCOTT 32-Geological Sci  
....J M BOYCE

**NAGW 2328 Kansas State University 4192**  
THE CENTER FOR GRAVITATIONAL STUDIES IN CELLULAR AND  
DEVELOPMENTAL BIOLOGY  
*Period Obligations*  
02/12/1991-12/31/1993 FY93: \$996,000 TOTAL: \$2,899,154  
*Prin. Invest. NASA Tech. Officer CASE Category*  
B S SPOONER HQ/R J WHITE 51-Biological Sci

**NCC 1-161 Kansas State University 4193**  
SURFACE TREATMENT SIZING AND INTERFACE STUDIES OF  
CARBON FIBERS IN COMPOSITES  
*Period Obligations*  
02/28/1992-02/20/1994 FY93: \$45,000 TOTAL: \$105,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
P M SHERWOOD LARC/H G MAAHS 47-Materials Engr

**NAG 1-912 University of Kansas 4194**  
A PROGRAM OF AUGMENTED TELEROBOTIC RESEARCH  
*Period Obligations*  
09/19/1988-09/30/1993 FY93: \$15,000 TOTAL: \$620,001  
*Prin. Invest. NASA Tech. Officer CASE Category*  
B G BARR LARC/R W MIXON 46-Mech Engr  
....W W HANKINS

**NAG 1-1087 University of Kansas 4195**  
IDENTIFICATION OF AERODYNAMIC MODELS FOR MANEUVERING  
AIRCRAFT  
*Period Obligations*  
01/23/1990-05/31/1992 FY93: \$0 TOTAL: \$69,671  
*Prin. Invest. NASA Tech. Officer CASE Category*  
C E LAN LARC/L T NGUYEN 41-Aero Engr  
....J M BRANDON

**NAG 2-789 University of Kansas 4196**  
DESIGN, ANALYSIS AND CONTROL OF LARGE TRANSPORTS SO  
THAT CONTROL OF ENGINE THRUST CAN BE USED AS A...  
*Period Obligations*  
06/24/1992-12/31/1993 FY93: \$13,000 TOTAL: \$38,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J ROSKAM ARC/F W BURCHAM 41-Aero Engr  
D GERREN ....R J RAY

**NAG 3-1194 University of Kansas 4197**  
RESEARCH ON COMPUTATIONAL HEAT TRANSFER IN GAS TURBINE  
ENGINES  
*Period Obligations*  
07/16/1990-10/31/1993 FY93: \$94,930 TOTAL: \$297,321  
*Prin. Invest. NASA Tech. Officer CASE Category*  
S FAROKHI LERC/R E GAUGLER 46-Mech Engr  
A AMERI

**NASA'S UNIVERSITY PROGRAM**  
**KANSAS (Continued)**

**NAG 5-912 University of Kansas 4198**  
 AN AIRBORNE STUDY OF MICROWAVE SURFACE AND BOUNDARY  
 LAYER HEAT AND MOISTURE FLUXES FIFE  
*Period Obligations*  
 06/15/1987-03/31/1993 FY93: \$0 TOTAL: \$234,809  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S P GOGINENI GSFC/M OWE 39-Env Sci, NEC  
 ....F HALL

**NAG 5-1765 University of Kansas 4199**  
 IUE OBSERVATIONS OF EXTREMELY METAL-DEFICIENT RED  
 GIANTS  
*Period Obligations*  
 09/17/1991-09/30/1992 FY93: \$0 TOTAL: \$6,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 B TWALOG GSFC/D WEST 11-Astronomy

**NAG 5-1811 University of Kansas 4200**  
 THE MEASUREMENT OF VERTICAL VELOCITIES IN CONVECTIVE  
 STORMS USING AIRBORNE DOPPLER RADARS  
*Period Obligations*  
 09/23/1991-09/30/1993 FY93: \$27,300 TOTAL: \$49,300  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S P GOGINENI GSFC/G M HEYMSFIELD 31-Atmos Sci  
 ....F EINAUDI

**NAG 5-2344 University of Kansas 4201**  
 STUDIES OF MICROWAVE SCATTERING AND CANOPY ARCHITECTURE  
 FOR BOREAL FORESTS  
*Period Obligations*  
 07/27/1993-08/14/1994 FY93: \$46,671 TOTAL: \$46,671  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S P GOGINENI GSFC/F G HALL 39-Env Sci, NEC  
 P M RICH ....P J SELLERS

**NAG 8-893 University of Kansas 4202**  
 RADAR WIND SOUNDER  
*Period Obligations*  
 10/15/1991-06/30/1993 FY93: \$0 TOTAL: \$48,692  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R K MOORE MSFC/D FITZJARRALD 31-Atmos Sci

**NAG 8-958 University of Kansas 4203**  
 RADAR WIND SOUNDER  
*Period Obligations*  
 04/05/1993-05/15/1994 FY93: \$45,158 TOTAL: \$45,158  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R K MOORE MSFC/D E FITZJARRALD 31-Atmos Sci

**NAGW 1278 University of Kansas 4204**  
 FUNDAMENTAL STUDIES OF RADAR SCATTERING FROM WATER  
 SURFACES  
*Period Obligations*  
 04/07/1988-06/30/1992 FY93: \$0 TOTAL: \$305,479  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 P GOGINENI HQ/G S LAGERLOEF 33-Oceanography  
 ....S W WILSON

**NAGW 1288 University of Kansas 4205**  
 TOPOLOGY OF LARGE-SCALE STRUCTURE OF THE UNIVERSE  
*Period Obligations*  
 05/04/1988-02/28/1993 FY93: \$0 TOTAL: \$165,644  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A L MELOTT HQ/G C CLAYTON 11-Astronomy

**NAGW 1559 University of Kansas 4206**  
 PLASMA EFFECTS ON CHARGED PARTICLE TRANSPORT IN  
 COMETS  
*Period Obligations*  
 01/26/1989-02/28/1994 FY93: \$36,000 TOTAL: \$281,729  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 T E CRAVENS HQ/M M MELLOTT 13-Physics  
 ....T W PERRY

**NAGW 1588 University of Kansas 4207**  
 STUDIES IN PLANETARY AERONOMY  
*Period Obligations*  
 12/28/1988-03/31/1994 FY93: \$64,000 TOTAL: \$301,611  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 T E CRAVENS HQ/J T BERGSTRALH 11-Astronomy

**NAGW 1984 University of Kansas 4208**  
 FUNDAMENTAL STUDIES OF RADAR BACKSCATTER FROM SEA  
 ICE  
*Period Obligations*  
 07/10/1990-05/31/1993 FY93: \$0 TOTAL: \$195,029  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S P GOGINENI HQ/R H THOMAS 33-Oceanography  
 ....J S THEON

**NAGW 2455 University of Kansas 4209**  
 DARK MATTER AND THE LARGE-SCALE STRUCTURE OF THE  
 UNIVERSE  
*Period Obligations*  
 04/12/1991-06/30/1992 FY93: \$0 TOTAL: \$41,991  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A L MCLOTT HQ/D P HUENEMOERDER 13-Physics

**NAGW 2923 University of Kansas 4210**  
 THEORY OF GRAVITATIONAL INSTABILITY  
*Period Obligations*  
 02/27/1992-02/28/1993 FY93: \$0 TOTAL: \$84,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A L MELOTT HQ/R STACHNIK 13-Physics  
 S F SHANDARIN

**NAGW 3043 University of Kansas 4211**  
 NAGW-3043/UNIV KANSAS/SEA-ICE CLASSIFICATION BY THE  
 INTELLIGENT INTEGRATION OF ACTIVE AND PASSIVE  
*Period Obligations*  
 04/17/1992-04/30/1993 FY93: \$121,498 TOTAL: \$257,050  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 C TSATSOU LIS HQ/R H THOMAS 33-Oceanography  
 P GOGINENI ....R A SCHIFFER



**NASA'S UNIVERSITY PROGRAM**  
**KANSAS (Continued)**

**NAGW 3346 University of Kansas 4212**  
 NAGW-3346/UNIV KANSAS/ANALYSIS OF ICE SHEET ALTIME TRY  
 DATA USING A COMBINED SURFACE/VOLUME  
*Period Obligations*  
 01/26/1993-12/31/1995 FY93: \$107,985 TOTAL: \$107,985  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S COGINENI HQ/R H THOMAS 39-Env Sci, NEC  
 ....R A SCHIFFER

**NAGW 3420 University of Kansas 4213**  
 NUMERICAL MODEL STUDIES  
*Period Obligations*  
 02/19/1993-02/28/1993 FY93: \$46,047 TOTAL: \$46,047  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M SEGAL HQ/H C BRINTON 19-Phys Sci, NEC

**NAGW 3700 University of Kansas 4214**  
 MEASUREMENT OF THICKNESS OF THE GREENLAND ICE SHEET  
 AND INVESTIGATION OF SCATTERING PROPERTIES  
*Period Obligations*  
 08/10/1993-05/31/1994 FY93: \$100,000 TOTAL: \$100,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S P GOGINENI HQ/R H THOMAS 39-Env Sci, NEC  
 ....J S THEON

**NCA 2-749 University of Kansas 4215**  
 PRELIMINARY STUDY OF OBLIQUE FLYING WING AND OBLIQUE  
 WIND-BODY SUPERSONIC TRANSPORT CONFIGURATIONS  
*Period Obligations*  
 08/25/1992-01/31/1993 FY93: \$0 TOTAL: \$5,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J ROSKAM ARC/R A KENNELLY 41-Aero Engr

**NCA 2-766 University of Kansas 4216**  
 THERMAL STRESS ANALYSIS OF ANISOTROPIC COMPOSITE LAMINATES  
*Period Obligations*  
 11/17/1992-12/31/1993 FY93: \$26,569 TOTAL: \$26,569  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J E LOCKE ARC/K K GUPTA 41-Aero Engr

**NCC 1-172 University of Kansas 4217**  
 RESEARCH ON A NOVEL, SMART SUPERSONIC FLOW CONTROLLER  
 NLPN 92-1206  
*Period Obligations*  
 02/22/1993-02/21/1994 FY93: \$36,500 TOTAL: \$36,500  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S FAROKHI LARC/D L CLER 41-Aero Engr  
 R R TAGHAVI

**NCC 2-588 University of Kansas 4218**  
 FIGHTER AGILITY METRICS, RESEARCH, AND TEST FIGHTER  
 AGILITY METRICS, RESEARCH, AND TEST  
*Period Obligations*  
 03/13/1989-12/31/1993 FY93: \$82,519 TOTAL: \$402,519  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D R DOWNING ARC/J GERA 41-Aero Engr  
 R K LIEFER ....R CLARKE  
 J L VALASEK

**NCC 2-732 University of Kansas 4219**  
 ADVANCED FLIGHT CONTROL RESEARCH  
*Period Obligations*  
 08/21/1991-12/14/1992 FY93: \$0 TOTAL: \$40,626  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D R DOWNING ARC/J V LEBACQZ 41-Aero Engr  
 ....J A FRANKLIN

**NCC 2-805 University of Kansas 4220**  
 CONTROL ISSUES RELATED TO THE COMMERCIAL SUPERSONIC  
 TRANSPORTS  
*Period Obligations*  
 06/11/1993-02/14/1994 FY93: \$20,000 TOTAL: \$20,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D R DOWNING ARC/E W AIKEN 41-Aero Engr  
 ....J A FRANKLIN

**NCC 3-251 University of Kansas 4221**  
 RESEARCH ON LASER-BASED DIAGNOSTIC TECHNIQUES IN FREE  
 SHEAR LAYERS  
*Period Obligations*  
 02/20/1992-11/30/1993 FY93: \$16,160 TOTAL: \$31,716  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R TAGHAVI LERC/J M ABBOTT 41-Aero Engr

**NGT 00-030-062 University of Kansas 4222**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
 09/09/1991-08/31/1994 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M E JAKUBAUSKAS HQ/D M BUTLER 39-Env Sci, NEC  
 K P PRICE ....G S WILSON

**NGT 00-030-140 University of Kansas 4223**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
 10/21/1992-08/31/1994 FY93: \$44,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A F ARBOGAST HQ/G ASRAR 32-Geological Sci  
 ....D M BUTLER

**NGT 00-030-189 University of Kansas 4224**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
 09/02/1993-08/31/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 C TSATSOUKIS HQ/G ASRAR 99-Multi-Discip  
 ....D M BUTLER

**NGT 00-030-202 University of Kansas 4225**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
 09/02/1993-08/31/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S P GOGINENI HQ/G ASRAR 31-Atmos Sci  
 ....D M BUTLER

**NGT 00-040-026 University of Kansas 4226**  
 NATIONAL SPACE GRANT COLLEGE AND FELLOWSHIP PROGRAM  
*Period Obligations*  
 04/30/1991-02/28/1994 FY93: \$173,000 TOTAL: \$473,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D R DOWNING HQ/E T SCHWARTZ 99-Multi-Discip

**NASA'S UNIVERSITY PROGRAM  
KANSAS (Continued)**

**NGT 00-050-464 University of Kansas 4227**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
08/01/1989-06/30/1992 FY93: \$0 TOTAL: \$62,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R K MOORE HQ/F C OWENS 45-Elec Engr

**NGT 00-050-472 University of Kansas 4228**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
08/08/1989-06/30/1992 FY93: \$0 TOTAL: \$55,300  
*Prin. Invest. NASA Tech. Officer CASE Category*  
T E CRAVENS HQ/F C OWENS 12-Chemistry

**NGT 00-050-604 University of Kansas 4229**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
07/24/1990-06/30/1993 FY93: \$0 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D HAVERKAMP HQ/F C OWENS 45-Elec Engr

**NGT 00-050-628 University of Kansas 4230**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
07/02/1990-06/30/1993 FY93: \$0 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
P GOGINENI HQ/F C OWENS 45-Elec Engr

**NGT 00-050-784 University of Kansas 4231**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
07/01/1991-06/30/1994 FY93: \$22,000 TOTAL: \$63,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
T E CRAVENS HQ/F C OWENS 13-Physics

**NGT 00-050-816 University of Kansas 4232**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
07/01/1991-06/30/1994 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
A L MELOTT HQ/F C OWENS 11-Astronomy

**NGT 00-051-021 University of Kansas 4233**  
GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
05/06/1993-06/30/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
S P GOGINENI GSFC/G SOFFEN 45-Elec Engr

**NGT 00-051-123 University of Kansas 4234**  
GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
07/05/1993-07/31/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R K MOORE HQ/G LESANE 45-Elec Engr

**NAG 1-1128 Wichita State University 4235**  
DELAMINATION ANALYSIS OF A LAMINATE SUBJECT TO EX-  
TENSION, BENDING AND TORSION D  
*Period Obligations*  
04/19/1990-09/30/1992 FY93: \$29 TOTAL: \$89,120  
*Prin. Invest. NASA Tech. Officer CASE Category*  
S J HOOPER LARC/T K O'BRIEN 41-Aero Engr

**NAG 1-1488 Wichita State University 4236**  
PROGRESSIVE DAMAGE ANALYSIS  
*Period Obligations*  
02/25/1993-02/28/1994 FY93: \$59,990 TOTAL: \$59,990  
*Prin. Invest. NASA Tech. Officer CASE Category*  
S J HOOPER LARC/T K O'BRIEN 41-Aero Engr

**NAG 3-566 Wichita State University 4237**  
RESEARCH PROGRAM TO VERIFY WATER DROPLET TRAJECTORY  
CODES  
*Period Obligations*  
07/25/1984-12/17/1993 FY93: \$0 TOTAL: \$723,226  
*Prin. Invest. NASA Tech. Officer CASE Category*  
G W ZUMWALT LERC/G S BIDWELL 41-Aero Engr  
....R J SHAW

**NCC 1-149 Wichita State University 4238**  
DOPPLER GLOBAL VELOCIMETRY EVALUATION AND APPLI-  
CATION  
*Period Obligations*  
02/04/1991-05/31/1992 FY93: \$0 TOTAL: \$38,858  
*Prin. Invest. NASA Tech. Officer CASE Category*  
L S MILLER LARC/J W USRY 41-Aero Engr

**NGT 00-050-984 Wichita State University 4239**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
08/04/1992-06/30/1994 FY93: \$22,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
M PAPADAKIS LARC/E PRIOR 42-Astro Engr

**KENTUCKY**

**NAG 8-191 Centre College 4240**  
PROJECT JOVE  
*Period Obligations*  
04/25/1991-07/28/1993 FY93: \$0 TOTAL: \$30,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J KIREKE MSFC/F SIX 99-Multi-Discip  
..../CHAPPELL

**NAG 3-1343 Eastern Kentucky University 4241**  
EXTENSION OF RESONATOR THEORY TO SMALL SAMPLES AND P  
RELIMINARY STUDY OF OPT OUTPUT COUPLERS AT 600GHZ  
*Period Obligations*  
04/07/1992-08/31/1992 FY93: \$0 TOTAL: \$2,500  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J D COOK LERC/V O HEINEN 13-Physics  
..../N STANKIEWICZ

**NASA'S UNIVERSITY PROGRAM  
KENTUCKY (Continued)**

**NAG 1-1246 University of Kentucky 4242**  
IMPROVE MODELS FOR ASSEMBLED SPACE STRUCTURES: OPTIMAL IDENTIFICATION FROM SUBSTRUCTURE TO INTEGRATE

Period	Obligations	
06/18/1991-08/31/1993	FY93: \$0	TOTAL: \$116,625
Prin. Invest.	NASA Tech. Officer	CASE Category
S W SMITH	LARC/T A KASHANGAKI	42-Astro Engr
C A BEATHE	....P A COOPER	

**NAG 1-1276 University of Kentucky 4243**  
INTEGRATED IMAGE DATABASE MANAGEMENT

Period	Obligations	
05/29/1991-06/20/1994	FY93: \$32,760	TOTAL: \$74,890
Prin. Invest.	NASA Tech. Officer	CASE Category
R MEHROTRA	LARC/P W GOODE	29-Math/Cmputer,NEC

**NAG 3-1251 University of Kentucky 4244**  
ADVANCED THERMAL CONTROL OF ELECTRONICS

Period	Obligations	
02/26/1991-12/01/1993	FY93: \$85,156	TOTAL: \$223,911
Prin. Invest.	NASA Tech. Officer	CASE Category
L L CHOW	LERC/K W BAKES	46-Mech Engr
	....M O DUSTIN	

**NAGW 2992 University of Kentucky 4245**  
NAGW-2992/ADAPTATION OF A COMPREHENSIVE REGIONAL- SCALE AIR QUALITY MODEL FOR STUDIES OF GLOBAL

Period	Obligations	
04/03/1992-12/31/1993	FY93: \$37,230	TOTAL: \$5,890
Prin. Invest.	NASA Tech. Officer	CASE Category
R D SAYLOR	HQ/J A KAYE	31-Atmos Sci
	....R E MURPHY	

**NAGW 3315 University of Kentucky 4246**  
PROBING THE CENTRAL REGIONS OF ACTIVE NUCLEI

Period	Obligations	
01/06/1993-10/31/1993	FY93: \$122,274	TOTAL: \$122,274
Prin. Invest.	NASA Tech. Officer	CASE Category
G FERLAND	HQ/G R RIEGLER	11-Astronomy

**NAGW 3317 University of Kentucky 4247**  
ASTROPHYSICS CONFERENCE ON ANGULAR MOMENTUM AND MASS TRANSFER INDUCED ACTIVITY IN GALAXIES

Period	Obligations	
01/06/1993-12/31/1993	FY93: \$25,500	TOTAL: \$25,500
Prin. Invest.	NASA Tech. Officer	CASE Category
I SHLOSMAN	HQ/E J CAROFF	11-Astronomy

**NGT 00-040-049 University of Kentucky 4248**  
NATIONAL SPACE GRANT COLLEGE AND FELLOWSHIP PROGRAM

Period	Obligations	
07/24/1991-02/28/1994	FY93: \$208,000	TOTAL: \$383,000
Prin. Invest.	NASA Tech. Officer	CASE Category
R HACKNEY	HQ/E SCHWARTZ	99-Multi-Discip

**NAG 1-1446 University of Louisville 4249**  
APPLICATION OF EXPLICIT OPTIMAL LOG TO THE SCOLE EXPERIMENTAL FACILITY

Period	Obligations	
07/20/1992-07/31/1993	FY93: \$0	TOTAL: \$10,300
Prin. Invest.	NASA Tech. Officer	CASE Category
J H LILLY	LARC/L W TAYLOR	42-Astro Engr

**NAG 2-386 University of Louisville 4250**  
REGULATORY MECHANISM OF MUSCLE DISUSE ATROPHY IN ADULT RAT

Period	Obligations	
11/01/1985-10/31/1991	FY93: \$0	TOTAL: \$358,210
Prin. Invest.	NASA Tech. Officer	CASE Category
X J MUSACCHIA	ARC/R E GRINDELAND	51-Biological Sci
J M STEFFIN		
R D FELL		

**NAG 2-624 University of Louisville 4251**  
SPACEFLIGHT AND IMMUNE RESPONSES OF RHESUS MONKEY S

Period	Obligations	
02/16/1990-10/31/1993	FY93: \$122,234	TOTAL: \$452,486
Prin. Invest.	NASA Tech. Officer	CASE Category
G SONNENFELD	ARC/R BALLARD	51-Biological Sci
	....D SESLINE	

**NAG 2-707 University of Louisville 4252**  
1991-1993 COSMOS RHESUS MONKEY BED-REST AND FLIGHT IMMUNOLOGY STUDIES

Period	Obligations	
05/16/1991-04/30/1994	FY93: \$45,000	TOTAL: \$95,000
Prin. Invest.	NASA Tech. Officer	CASE Category
G SONNENFELD	ARC/J P CONNOLLY	51-Biological Sci
	....R W BALLARD	

**NAG 9-485 University of Louisville 4253**  
CYTOKINES AND IMMUNE SURVEILLANCE IN HUMANS

Period	Obligations	
10/01/1990-10/01/1993	FY93: \$20,000	TOTAL: \$99,600
Prin. Invest.	NASA Tech. Officer	CASE Category
G SONNENFELD	JSC/G TAYLOR	51-Biological Sci

**NAG 9-617 University of Louisville 4254**  
CYTOKINES AND MACROPHAGE FUNCTION IN HUMANS ROLE OF STRESS

Period	Obligations	
06/12/1992-07/01/1994	FY93: \$60,000	TOTAL: \$109,250
Prin. Invest.	NASA Tech. Officer	CASE Category
G SONNENFELD	JSC/C F SAMS	56-Medical Sciences

**NAGW 70 University of Louisville 4255**  
RESEARCH ON SPACE BIOLOGY PROJECTS

Period	Obligations	
06/01/1980-11/30/1993	FY93: \$185,000	TOTAL: \$2,503,964
Prin. Invest.	NASA Tech. Officer	CASE Category
G SONNENFELD	HQ/T HALSTEAD	51-Biological Sci

**NCA 2-574 University of Louisville 4256**  
SIGNAL TRANSDUCTION IN NEUTROPHILS

Period	Obligations	
11/06/1990-04/30/1993	FY93: \$0	TOTAL: \$10,000
Prin. Invest.	NASA Tech. Officer	CASE Category
G SONNENFELD	ARC/D GOLDWATER	56-Medical Sciences
J KELIN		

**NCA 2-687 University of Louisville 4257**  
IMMUNOLOGICAL AND HEMATOPOIETIC BIOTECHNOLOGY STUDIES

Period	Obligations	
02/18/1992-02/14/1994	FY93: \$0	TOTAL: \$60,000
Prin. Invest.	NASA Tech. Officer	CASE Category
G SONNENFELD	ARC/R W BALLARD	51-Biological Sci
	....D GOLDWATER	

# NASA'S UNIVERSITY PROGRAM

## LOUISIANA

### LOUISIANA

#### NAG 1-1359 Louisiana State University - Baton Rouge 4258

HYPERVELOCITY IMPACT OF LARGE MASSES - DATA COLLECTION AND CORRELATION

<i>Period</i>		<i>Obligations</i>	
12/03/1991-09/01/1993	FY93: \$0		TOTAL: \$42,795
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>		<i>CASE Category</i>
R W COURTER	LARC/W I SCALLION		19-Phys Sci, NEC

#### NAG 5-71 Louisiana State University - Baton Rouge 4259

ULTRAVIOLET SPECTROSCOPY OF SELECTED ASTRONOMICAL SOURCES

<i>Period</i>		<i>Obligations</i>	
07/01/1980-07/31/1994	FY93: \$17,000		TOTAL: \$194,174
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>		<i>CASE Category</i>
J S DRILLING	GSFC/D WEST		11-Astronomy
K HUNGER			

#### NAG 5-1520 Louisiana State University - Baton Rouge 4260

CORRELATED OBSERVATIONS USING THE EGRET INSTRUMENT ON GRO AND THE IMB NEUTRINO DETECTOR

<i>Period</i>		<i>Obligations</i>	
04/02/1992-08/14/1992	FY93: \$5,928		TOTAL: \$40,674
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>		<i>CASE Category</i>
R C SVOBODA	GSFC/J P NORRIS		11-Astronomy
	..../D A KNIFFEN		

#### NAG 5-2062 Louisiana State University - Baton Rouge 4261

A SEARCH FOR RADIATIVE NEUTRINO DECAY FROM SUPERNOVAE AND A PROPOSAL FOR USE OF THE MICRO OBS.

<i>Period</i>		<i>Obligations</i>	
08/05/1992-08/31/1993	FY93: \$27,955		TOTAL: \$50,286
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>		<i>CASE Category</i>
R C SVOBODA	GSFC/J P NORRIS		11-Astronomy
	..../N WHITE		

#### NAG 5-2113 Louisiana State University - Baton Rouge 4262

LOWER AND UPPER BOUNDARIES OF THE ZZ CETI INSTABILITY STRIP

<i>Period</i>		<i>Obligations</i>	
10/08/1992-10/14/1993	FY93: \$5,000		TOTAL: \$5,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>		<i>CASE Category</i>
D KOESTER	GSFC/D WEST		11-Astronomy

#### NAG 5-2229 Louisiana State University - Baton Rouge 4263

TRACE ELEMENT ABUNDANCES IN HOT DA WHITE DWARFS

<i>Period</i>		<i>Obligations</i>	
03/23/1993-09/30/1994	FY93: \$7,000		TOTAL: \$7,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>		<i>CASE Category</i>
D KOESTER	GSFC/R PETRE		11-Astronomy

#### NAG 9-714 Louisiana State University - Baton Rouge 4264

CATABOLIC EFFECTS OF WEIGHTLESSNESS AND PROPOSED COUNTERMEASURE

<i>Period</i>		<i>Obligations</i>	
09/29/1993-10/31/1994	FY93: \$260,000		TOTAL: \$260,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>		<i>CASE Category</i>
G A BRAY	JSC/H LANE		56-Medical Sciences

#### NAGW 1027 Louisiana State University - Baton Rouge 4265

COMPOSITION AND TRANSPORT OF GALACTIC COSMIC RAYS

<i>Period</i>		<i>Obligations</i>	
12/01/1986-11/30/1993	FY93: \$120,000		TOTAL: \$942,484
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>		<i>CASE Category</i>
J P WEFEL	HQ/M M MELLOTT		13-Physics
	..../W V JONES		

#### NAGW 1526 Louisiana State University - Baton Rouge 4266

THE SYSTEMATIC INTERPRETATION OF COSMIC RAY DATA

<i>Period</i>		<i>Obligations</i>	
12/14/1988-12/31/1993	FY93: \$118,149		TOTAL: \$556,503
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>		<i>CASE Category</i>
T G GUZIK	HQ/M M MELLOTT		13-Physics
	..../W V JONES		

#### NAGW 1552 Louisiana State University - Baton Rouge 4267

REMOTE SENSING AND IMAGE-PROCESSING TECHNOLOGIES

<i>Period</i>		<i>Obligations</i>	
09/29/1988-09/30/1993	FY93: \$0		TOTAL: \$261,665
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>		<i>CASE Category</i>
H H ROBERTS	HQ/G LASANE		39-Env Sci, NEC

#### NAGW 2033 Louisiana State University - Baton Rouge 4268

ELECTRON POSITIVE ION INTERACTIONS

<i>Period</i>		<i>Obligations</i>	
04/18/1990-11/30/1993	FY93: \$43,500		TOTAL: \$165,499
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>		<i>CASE Category</i>
Y K HO	HQ/J BERGSTRALH		11-Astronomy

#### NAGW 2052 Louisiana State University - Baton Rouge 4269

DOWNDRAFT IMPACTS OF A DEVELOPING RIVER DELTA SYSTEM

<i>Period</i>		<i>Obligations</i>	
07/02/1990-06/30/1994	FY93: \$89,990		TOTAL: \$271,620
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>		<i>CASE Category</i>
O HUH	HQ/M BALTUCK		32-Geological Sci
D L RICKMAN	..../T J PIEPER		

#### NAGW 2137 Louisiana State University - Baton Rouge 4270

OBSERVATIONS OF WHITE DWARFS AND CONSEQUENCES FOR STELLAR EVOLUTION THEORY

<i>Period</i>		<i>Obligations</i>	
10/15/1990-12/31/1993	FY93: \$26,000		TOTAL: \$95,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>		<i>CASE Category</i>
D G KOESTER	HQ/G S KUTTER		11-Astronomy
	..../G R KIEGLER		

**NASA'S UNIVERSITY PROGRAM**  
**LOUISIANA (Continued)**

**NAGW 2447 Louisiana State University - Baton Rouge 4271**  
 NAGW-2447/LOUISIANA STATE UNIV/ACCRETION PROCESSES IN ASTROPHYSICS  

<i>Period</i>	<i>Obligations</i>	
04/04/1991-01/31/1994	FY93: \$170,000	TOTAL: \$499,159
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
J FRANK	HQ/G S KUTTER	11-Astronomy
	....G R RIEGLER	

**NAGW 2607 Louisiana State University - Baton Rouge 4272**  
 BERYLLIUM TO SILICON ISOTOPES USING AN ADVANCED MA GNET SPECTROMETER RON THE NASA/NMSU BALLOON-BORNE  

<i>Period</i>	<i>Obligations</i>	
07/19/1991-09/30/1992	FY93: \$0	TOTAL: \$101,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
T G GUZIK	HQ/T W PERRY	13-Physics

**NAGW 2911 Louisiana State University - Baton Rouge 4273**  
 STANDARDIZED WORK FOR THE CALIBRATION OF INTENSITIES OF CELESTIAL OBJECTS  

<i>Period</i>	<i>Obligations</i>	
02/20/1992-12/31/1992	FY93: \$0	TOTAL: \$60,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
A U LANDOLT	HQ/R STACHNIK	11-Astronomy
	....E J WEILER	

**NAGW 3289 Louisiana State University - Baton Rouge 4274**  
 NAGW-3289/LOUISIANA STATE UNIV/INSTRUMENTATION FOR AUTOMATED NUCLEAR PARTICLE TRACK ANALYSIS  

<i>Period</i>	<i>Obligations</i>	
11/27/1992-09/30/1993	FY93: \$50,370	TOTAL: \$50,370
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
M L CHERRY	HQ/J D BOHLIN	13-Physics

**NAGW 3560 Louisiana State University - Baton Rouge 4275**  
 AUTOMATED ANALYSIS OF ULTRA HIGH ENERGY COSMIC RAY EVENTS  

<i>Period</i>	<i>Obligations</i>	
04/27/1993-02/28/1994	FY93: \$61,495	TOTAL: \$61,495
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
M L CHERRY	HQ/J D BOHLIN	13-Physics

**NAGW 3759 Louisiana State University - Baton Rouge 4276**  
 DEVELOPMENTAL AND PHYSIOLOGICAL PROCESSES INFLUENCING SEED PRODUCTION IN MICROGRAVITY  

<i>Period</i>	<i>Obligations</i>	
09/17/1993-09/30/1994	FY93: \$50,000	TOTAL: \$50,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
M MUSGRAVE	HQ/T W HALSTEAD	51-Biological Sci

**NAGW 10-75 Louisiana State University - Baton Rouge 4277**  
 DEVELOPMENTAL AND PHYSIOLOGICAL PROCESS INFLUENCING SEED PRODUCTION IN MICROGRAVITY  

<i>Period</i>	<i>Obligations</i>	
07/09/1990-07/08/1994	FY93: \$163,210	TOTAL: \$481,436
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
M E MUSGRAVE	JSC/W KNOTT	51-Biological Sci

**NGT 00-030-183 Louisiana State University - Baton Rouge 4278**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  

<i>Period</i>	<i>Obligations</i>	
08/26/1993-08/31/1994	FY93: \$22,000	TOTAL: \$22,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
K G HENDERSON	HQ/G ASRAR	99-Multi-Discip
	....D M BUTLER	

**NGT 00-040-039 Louisiana State University - Baton Rouge 4279**  
 NATIONAL SPACE GRANT COLLEGE AND FELLOWSHIP PROGRAM  

<i>Period</i>	<i>Obligations</i>	
04/10/1991-02/28/1994	FY93: \$208,000	TOTAL: \$563,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
J P WEFEL	HQ/E T SCHWARTZ	99-Multi-Discip

**NGT 00-050-927 Louisiana State University - Baton Rouge 4280**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  

<i>Period</i>	<i>Obligations</i>	
06/15/1992-06/30/1993	FY93: \$0	TOTAL: \$22,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
R C SVOBODA	GSFC/G SOFFEN	13-Physics

**NGT 00-051-015 Louisiana State University - Baton Rouge 4281**  
 GRADUATE STUDENT RESEARCHERS PROGRAM  

<i>Period</i>	<i>Obligations</i>	
05/14/1993-07/31/1994	FY93: \$22,000	TOTAL: \$22,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
D L CARVER	SSC/A JOYCE	22-Computer Science

**NGT 00-051-097 Louisiana State University - Baton Rouge 4282**  
 GRADUATE STUDENT RESEARCHERS PROGRAM  

<i>Period</i>	<i>Obligations</i>	
06/22/1993-06/30/1994	FY93: \$22,000	TOTAL: \$22,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
M E MUSGRAVE	KSC/B MARTIN	55-Agriculture Sci

**NGT 00-090-197 Louisiana State University - Baton Rouge 4283**  
 UNDERGRADUATE STUDENT RESEARCHERS PROGRAM  

<i>Period</i>	<i>Obligations</i>	
08/27/1993-08/14/1994	FY93: \$12,000	TOTAL: \$12,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
A STERLING	HQ/D K RUSSELL	99-Multi-Discip

**NASA'S UNIVERSITY PROGRAM**  
**LOUISIANA (Continued)**

**NGT 00-090-198 Louisiana State University - Baton Rouge 4284**  
UNDERGRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
08/27/1993-08/14/1994 FY93: \$12,000 TOTAL: \$12,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
A STERLING HQ/D K RUSSELL 99-Multi-Discip

**NAG 9-167 Louisiana State University - Shreveport 4285**  
TEST EFFICACY + SIDE EFFECTS OF ANTIMOTN  
*Period Obligations*  
07/01/1986-10/01/1993 FY93: \$40,000 TOTAL: \$321,072  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J J STEWART JSC/D L HARM 56-Medical Sciences  
J E MANNO  
H M REDETZI

**NGT 00-090-195 Louisiana Tech University 4286**  
UNDERGRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
08/27/1993-08/14/1994 FY93: \$12,000 TOTAL: \$12,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J NELSON HQ/D RUSSELL 99-Multi-Discip

**NGT 00-090-196 Louisiana Tech University 4287**  
UNDERGRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
08/27/1993-08/14/1994 FY93: \$12,000 TOTAL: \$12,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J NELSON HQ/D RUSSELL 99-Multi-Discip

**NAG 8-252 Southern Univ & A&M College 4288**  
ALUMINUM-LITHIUM STUDY  
*Period Obligations*  
09/18/1992-03/17/1994 FY93: \$44,891 TOTAL: \$44,891  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R DIWAN MSFC/G FICHTL 47-Materials Engr  
....R WALKER

**NAGW 3041 Southern Univ & A&M College 4289**  
DEVELOPMENT AND INSTALLATION OF A SCHOLARS' RESEAR CH  
EDUCATIONAL ANALYSIS PROGRAM DATABASE  
*Period Obligations*  
04/03/1992-02/28/1993 FY93: \$0 TOTAL: \$190,922  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R L FORD HQ/O A GUTIERREZ 99-Multi-Discip  
....M S MARGOLIS

**NASW 4231 Southern Univ & A&M College 4290**  
NASA TECHNOLOGY DISSEMINATION CENTER  
*Period Obligations*  
04/23/1987-04/23/1992 FY93: \$0 TOTAL: \$1,537,999  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J N HUBBELL HQ/A B KAHN 99-Multi-Discip

**NGT 00-060-004 Southern Univ & A&M College 4291**  
NGT-60004/SOUTHERN UNIV/SUMMER FACULTY FELLOWSHIP  
PROGRAM  
*Period Obligations*  
04/19/1991-01/31/1994 FY93: \$277,848 TOTAL: \$549,713  
*Prin. Invest. NASA Tech. Officer CASE Category*  
E HILDRETH HQ/A S MCGEE 49-Engr, NEC  
H ....E SCHWARTZ

**NGT 00-090-022 Southern Univ & A&M College 4292**  
GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
11/03/1988-12/31/1992 FY93: \$0 TOTAL: \$129,993  
*Prin. Invest. NASA Tech. Officer CASE Category*  
L ROQUEMORE HQ/M MARGOLIS 22-Computer Science  
D MORMON ....J H WILSON

**NGT 00-090-118 Southern Univ & A&M College 4293**  
UNDERGRADUATE STUDENT RESEARCHERS PROGRAM (UMF)  
*Period Obligations*  
09/25/1992-08/14/1994 FY93: \$12,000 TOTAL: \$24,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D BAGAYOKO HQ/D K RUSSELL 99-Multi-Discip

**NGT 00-090-119 Southern Univ & A&M College 4294**  
UNDERGRADUATE STUDENT RESEARCHERS PROGRAM (UMF)  
*Period Obligations*  
09/25/1992-08/14/1994 FY93: \$0 TOTAL: \$12,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D BAGAYOKO HQ/D K RUSSELL 99-Multi-Discip

**NAG 1-1270 Tulane University 4295**  
MOMENTUM MANAGEMENT IN REDUNDANT MANIPULATORS FOR  
VIBRATION SUPPRESSION  
*Period Obligations*  
04/26/1991-08/31/1993 FY93: \$0 TOTAL: \$43,542  
*Prin. Invest. NASA Tech. Officer CASE Category*  
E BARBIERI LARC/R C MONTGOMERY 42-Astro Engr  
....S KENNY

**NAG 3-967 Tulane University 4296**  
MODELING OF FRACTURE PROCESS IN FIBER REINFORCED C  
ERAMICS  
*Period Obligations*  
12/12/1988-12/31/1993 FY93: \$0 TOTAL: \$210,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
A A RUBENSTEIN LERC/B GROSS 47-Materials Engr

**NAG 5-2216 Tulane University 4297**  
CLOUD IDENTIFICATION USING GENETIC ALGORITHMS AND  
MASSIVELY PARALLEL COMPUTATION  
*Period Obligations*  
02/18/1993-11/30/1993 FY93: \$30,000 TOTAL: \$30,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
B P BUCKLES GSFC/J R FISCHER 22-Computer Science  
F E PETRI ....1

**NAGW 1516 Tulane University 4298**  
INFLUENCE OF SYNAPTOGENESIS  
*Period Obligations*  
11/21/1988-04/30/1994 FY93: \$50,000 TOTAL: \$240,497  
*Prin. Invest. NASA Tech. Officer CASE Category*  
C D FERMIN HQ/T W HALSTEAD 59-Life Sci, NEC

**NCA 2-660 Tulane University 4299**  
AN ATTEMPT TO CLONE THE NITRATE REDUCTAS GENE OF  
HALOFOX DENITRIFICANS  
*Period Obligations*  
09/17/1991-10/31/1993 FY93: \$10,850 TOTAL: \$29,700  
*Prin. Invest. NASA Tech. Officer CASE Category*  
E J JOHNSON ARC/L I HOCHSTEIN 56-Medical Sciences

**NASA'S UNIVERSITY PROGRAM**  
**LOUISIANA (Continued)**

**NGT 00-050-550 Tulane University 4300**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 08/10/1990-06/30/1993 FY93: \$22,000 TOTAL: \$88,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A L WEIDEN HQ/F C OWENS 51-Biological Sci

**NGT 00-050-695 Tulane University 4301**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 09/23/1991-08/31/1994 FY93: \$22,000 TOTAL: \$65,500  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 E E MICHAELIDES HQ/F C OWENS 46-Mech Engr

**NGT 00-051-012 Tulane University 4302**  
 NGT-51012/TULANE UNIV/GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 05/04/1993-06/30/1994 FY93: \$20,667 TOTAL: \$20,667  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J B ELSTROTT SSC/A JOYCE 29-Math/Computer, NEC

**NGT 00-090-223 Tulane University 4303**  
 UNDERGRADUATE STUDENT RESEARCHERS (UMF) PROGRAM  
*Period Obligations*  
 09/14/1993-08/14/1994 FY93: \$12,000 TOTAL: \$12,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S SULLIVAN HQ/D K RUSSELL 99-Multi-Discip

**NAG13-21 University of New Orleans 4304**  
 PIEZOELECTRIC HYDROGEN CHLORIDE MONITOR SAME  
*Period Obligations*  
 03/13/1992-08/31/1992 FY93: \$0 TOTAL: \$19,891  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 G G GUILBAULT SSC/H LANGEBERG 49-Engr, NEC

**NAS 8-38841 University of New Orleans 4305**  
 DIGITAL FILTERING FOR TETHERED SATELLITE DYNAMIC MEASUREMENTS  
*Period Obligations*  
 01/16/1991-05/31/1993 FY93: \$0 TOTAL: \$58,564  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 G E IOUP MSFC/D M MCGLATHERY 42-Astro Engr  
 J D IOUP ....D K MOWERY

**NGT 00-051-014 University of New Orleans 4306**  
 GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 05/05/1993-06/30/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 E P RUSSO SSC/A JOYCE 46-Mech Engr

**NAGW 3565 University of Southwestern Louisiana 4307**  
 MAGNETOPHORETIC INDUCTION OF ROOT CURVATURE  
*Period Obligations*  
 05/26/1993-04/30/1994 FY93: \$50,000 TOTAL: \$50,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 K H HASENSTEIN HQ/T W HALSTEAD 51-Biological Sci

**NAG13-24 University of Southwestern Louisiana 4308**  
 BUILDING AN INTEGRATED ENVIRONMENT BUILDING AN INTEGRATED ENVIRONMENT FOR MULTI-MEDIA  
*Period Obligations*  
 03/17/1993-03/18/1994 FY93: \$69,630 TOTAL: \$69,630  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 T WILLIAMS SSC/JOYCE 31-Atmos Sci

**NGT 00-051-007 University of Southwestern Louisiana 4309**  
 NGT-51007/UNIV SOUTHEASTERN LOUISIANA/GRADUATE STUDENT RESEARCHERS PORGRAM  
*Period Obligations*  
 11/27/1992-01/03/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D MOREAU SSC/A JOYCE 22-Computer Science

**NGT 00-090-004 Xavier University - Louisiana 4310**  
 TRAINING GRANT  
*Period Obligations*  
 01/01/1987-04/30/1994 FY93: \$136,771 TOTAL: \$748,188  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 G W BAKER HQ/L WARREN 49-Engr, NEC  
 ....M MORGOLIS

**MAINE**

**NAGW 1719 Bowdoin College 4311**  
 EFFECTS OF GRAVITY IN EARLY AMPHIBIAN EMBRYOS  
*Period Obligations*  
 04/17/1989-01/31/1994 FY93: \$65,000 TOTAL: \$276,718  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 C R PHILLIPS HQ/T W HALSTEAD 51-Biological Sci

**NAG 3-576 Colby College 4312**  
 LEO HIGH VOLTAGE SOLAR ARRAY ARCING RESPONSE MODEL  
*Period Obligations*  
 11/02/1988-09/31/1993 FY93: \$13,421 TOTAL: \$162,313  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R N METZ LERC/D B SNYDER 45-Elec Engr  
 ....C K PURVIS

**NAGW 1428 University of Maine - Orono 4313**  
 MICROBIAL CONTROLS OF METHANE EMISSIONS AND OXIDATION  
*Period Obligations*  
 09/08/1988-09/30/1992 FY93: \$0 TOTAL: \$179,878  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 G M KING HQ/M M AVERNER 54-Env Biology

**NAGW 2780 University of Maine - Orono 4314**  
 GAS EXCHANGE IN WETLANDS: CONTROLS AND REMOTE SENSING  
*Period Obligations*  
 12/02/1991-09/30/1992 FY93: \$0 TOTAL: \$80,799  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 G M KING HQ/M M AVERNER 39-Env Sci, NEC

# NASA'S UNIVERSITY PROGRAM

## MAINE (Continued)

**NAGW 3746 University of Maine - Orono 4315**  
 ROOT-ASSOCIATED METHANE OXIDATION AND METHANOGENESIS IS:  
 KEY DETERMINANTS OF METHANE EMISSIONS  
*Period Obligations*  
 09/16/1993-07/31/1996 FY93: \$97,443 TOTAL: \$97,443  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 G M KING HQ/D E WICKLAND 39-Env Sci, NEC  
 ....A C JANETOS

## MARYLAND

**NAG 5-1054 Bowie State College 4316**  
 AUTOMATIC ASSEMBLY IN SPACE  
*Period Obligations*  
 06/15/1988-02/28/1993 FY93: \$0 TOTAL: \$194,252  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S SRIVASTAVA GSFC/G K JONES 49-Engr, NEC  
 S N DWIVEDI ....E W TRAVIS

**NAG 5-2277 Bowie State College 4317**  
 RESEARCH AND DEVELOPMENT FOR AN INFORMATION ECOLOG  
 Y  
*Period Obligations*  
 05/26/1993-06/14/1994 FY93: \$45,000 TOTAL: \$45,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S SRIVASTAVA GSFC/W F TRUSZKOWSKI 22-Computer Science  
 N WAKIM

**NGT 00-090-016 Bowie State College 4318**  
 SUMMER INSTITUTE ON COMPUTER APPLICATIONS  
*Period Obligations*  
 06/09/1988-05/14/1994 FY93: \$163,992 TOTAL: \$589,241  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 C H KIRKSEY HQ/M MARGOLIS 22-Computer Science  
 ....D MENCHAN

**NGT 00-090-063 Capitol College 4319**  
 PRE-COLLEGE MINORITY ENGINEERING PROGRAM  
*Period Obligations*  
 06/15/1992-06/14/1994 FY93: \$65,868 TOTAL: \$109,468  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J JARRELL GSFC/D MENCHAN 45-Elec Engr  
 ....B WHITE

**NAG 5-2042 Center For Environ & Estuarine Studies 4320**  
 TREE REGENERATION IN SMALL FOREST PATCHES: INTERA CTIONS  
 OF BROWSING INTENSITY AND ABIOTIC FACTORS  
*Period Obligations*  
 07/15/1992-01/31/1994 FY93: \$13,296 TOTAL: \$44,645  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S W SEAGLE GSFC/G A SOFFEN 54-Env Biology  
 ....P J SAKIMOTO

**NAG 5-2267 Center For Environ & Estuarine Studies 4321**  
 PHYSICAL - BIOLOGICAL INTERACTIONS IN THE GLOVAL E  
 QUATORIAL SURFACE LAYER  
*Period Obligations*  
 05/12/1993-05/14/1994 FY93: \$24,113 TOTAL: \$24,113  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 H W DUCKLOW GSFC/C R MCCLAIN 33-Oceanography  
 ....A J BUSALACCHI

**NAG 5-1377 Charles County Community College 4322**  
 INVEST. FORMATION, PROPERTIES AND METAMORPHISM  
*Period Obligations*  
 04/30/1990-05/31/1994 FY93: \$16,010 TOTAL: \$49,963  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 G F KRAUSE GSFC/J A NUTH 11-Astronomy  
 ....J E ALLEN

**NAG 1-1191 Johns Hopkins University 4323**  
 DETECTION OF BONDING DEFECTS USING COMBINED THERM-  
 AL/THERMAL WAVE AND HOLOGRAPHIC/SHEAROGRAPHIC FD  
*Period Obligations*  
 10/11/1990-09/30/1993 FY93: \$47,979 TOTAL: \$151,970  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J W WAGNER LARC/W P WINFREE 19-Phys Sci, NEC  
 ....L D MELVIN

**NAG 1-1247 Johns Hopkins University 4324**  
 THIN FILM PROCESSING OF PHOTOEFFECTIVE BATIO3-FDP  
*Period Obligations*  
 03/15/1991-07/31/1993 FY93: \$47 TOTAL: \$179,653  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R S POTEMBER LARC/S S WELCH 47-Materials Engr  
 P R SCHUSTER

**NAG 1-1524 Johns Hopkins University 4325**  
 LASER SOURCES FOR GENERATION OF ULTRASOUND NLNP  
 93-309  
*Period Obligations*  
 08/09/1993-08/08/1994 FY93: \$256,000 TOTAL: \$256,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J WAGNER LARC/W P WINFREE 19-Phys Sci, NEC

**NAG 2-642 Johns Hopkins University 4326**  
 SOLAR ENERGETIC PARTICLES IN THE OUTER HELIOSPHER E  
*Period Obligations*  
 05/30/1990-03/31/1992 FY93: \$0 TOTAL: \$94,008  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 E C ROELOF ARC/L E LASHER 11-Astronomy  
 ....R O FIMMEL

**NAG 3-1431 Johns Hopkins University 4327**  
 SIXTH INTERNATIONAL SYMPOSIUM ON NONDESTRUCTIVE CH  
 ARACTERIZATION OF MATERIALS  
*Period Obligations*  
 01/22/1993-09/30/1993 FY93: \$5,000 TOTAL: \$5,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R E GREENE JR. LERC/A VARY 47-Materials Engr

**NAG 5-619 Johns Hopkins University 4328**  
 ROCHET AND LABORATORY EXPERIMENTS IN AERONOMY AND  
 ASTRONOMY  
*Period Obligations*  
 03/01/1983-02/28/1994 FY93: \$525,000 TOTAL: \$6,288,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 P D FELDMAN GSFC/L J EARLY 13-Physics  
 A F DAVIDSEN ....R H PLESS  
 W G FASTIE



**NASA'S UNIVERSITY PROGRAM**  
**MARYLAND (Continued)**

**NAG 5-988**                      **Johns Hopkins University**                      **4329**  
RESEARCH RELATIVE AND ULTRAVIOLET OBSERVATIONS OF  
ASTRONOMICAL PHENOMINA  
*Period*    *Obligations*  
09/01/1987-02/29/1992                      FY93: \$0                      TOTAL: \$135,190  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
W P BLAIR                      GSFC/D WEST                      11-Astronomy  
K S LONG

**NAG 5-1521**                      **Johns Hopkins University**                      **4336**  
PERFORMANCE STUDIES OF A LASER RANGING SYSTEM FOR THE  
LUNAR OBSERVER MISSION  
*Period*    *Obligations*  
04/02/1991-06/14/1992                      FY93: \$0                      TOTAL: \$22,573  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
F E DAVIDSON                      GSFC/J B ABSHIRE                      45-Elec Engr

**NAG 5-1099**                      **Johns Hopkins University**                      **4330**  
DATA INTERFACES ISTEP GROUND BASED DARN PROGRAM  
*Period*    *Obligations*  
11/01/1988-02/28/1994                      FY93: \$220,000                      TOTAL: \$853,000  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
R A GREENWALD                      GSFC/S A CURTIS                      13-Physics  
...../M H ACUNA

**NAG 5-1524**                      **Johns Hopkins University**                      **4337**  
CURRENT SHEETS IN THE EARTH'S MAGNETOSPHERE: A PARTICLE  
PERSPECTIVE  
*Period*    *Obligations*  
05/03/1991-05/31/1994                      FY93: \$66,200                      TOTAL: \$189,200  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
D G MITCHELL                      GSFC/G D BULLOCK                      19-Phys Sci, NEC

**NAG 5-1119**                      **Johns Hopkins University**                      **4331**  
STUDY OF MULTI-PINNED-PHASE CCD DETECTOR FOR STAR  
TRACKER  
*Period*    *Obligations*  
02/01/1989-01/31/1994                      FY93: \$0                      TOTAL: \$96,315  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
S D FRIEDMAN                      GSFC/G SONNEBORN                      11-Astronomy  
...../B E WOODGATE

**NAG 5-1537**                      **Johns Hopkins University**                      **4338**  
ROSAT IMAGING OF M83  
*Period*    *Obligations*  
04/28/1991-04/30/1994                      FY93: \$0                      TOTAL: \$28,500  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
W BLAIR                      GSFC/R PETRE                      11-Astronomy

**NAG 5-1276**                      **Johns Hopkins University**                      **4332**  
DETAILED ANALYSIS OF VOYAGER OBSERVATIONS OF  
SUPERNOVA  
*Period*    *Obligations*  
08/22/1989-02/29/1992                      FY93: \$0                      TOTAL: \$69,501  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
W BLAIR                      GSFC/D WEST                      11-Astronomy

**NAG 5-1538**                      **Johns Hopkins University**                      **4339**  
THE OPTICAL CATEGORIZATION OF SATELLITE DISCOVERED  
SOURCES  
*Period*    *Obligations*  
05/02/1991-05/14/1993                      FY93: \$0                      TOTAL: \$114,576  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
R BURG                      GSFC/R PETRE                      11-Astronomy

**NAG 5-1282**                      **Johns Hopkins University**                      **4333**  
IRAS-ADP STUDY OF DUST NEAR LUMINOUS ULTRAVIOLET STARS  
*Period*    *Obligations*  
08/29/1989-06/30/1993                      FY93: \$0                      TOTAL: \$98,170  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
R C HENRY                      GSFC/D WEST                      11-Astronomy

**NAG 5-1601**                      **Johns Hopkins University**                      **4340**  
STUDIES OF ELECTROMAGNETIC CYCLOTRON WAVES USING  
AMPTE/CCE AND DE-1  
*Period*    *Obligations*  
05/03/1991-05/31/1994                      FY93: \$48,300                      TOTAL: \$138,100  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
R E ERLANDSON                      GSFC/G D BULLOCK                      19-Phys Sci, NEC

**NAG 5-1476**                      **Johns Hopkins University**                      **4334**  
EMPIRICAL DETERMINATION OF THE EFFECTS OF CLOUDS ON  
THE EARTH'S RADIATION BUDGET OVER THE PACIFIC O  
*Period*    *Obligations*  
10/24/1990-11/14/1992                      FY93: \$0                      TOTAL: \$50,200  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
D F STROBEL                      GSFC/A ARKING                      31-Atmos Sci  
D ZISKIN

**NAG 5-1617**                      **Johns Hopkins University**                      **4341**  
SEARCH FOR CLOSE COMPANIONS OF NEARBY STARS AND TO  
SIMULATE ST IMAGES IN THE LABORATORY  
*Period*    *Obligations*  
05/24/1991-10/31/1993                      FY93: \$156,201                      TOTAL: \$365,951  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
W G FASTIE                      GSFC/S SOBIESKI                      11-Astronomy

**NAG 5-1510**                      **Johns Hopkins University**                      **4335**  
REDUCED ELECTRICAL BANDWIDTH RECEIVERS FOR DIRECT  
DETECTION 4-ARY PPM OPTICAL COMMUNICATION INTER...  
*Period*    *Obligations*  
03/27/1991-10/14/1992                      FY93: \$0                      TOTAL: \$130,116  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
F M DAVIDSON                      GSFC/M A KRAINAK                      45-Elec Engr  
X SUN                      ....//A J MARTINO

**NAG 5-1636**                      **Johns Hopkins University**                      **4342**  
THE MASS AND DYNAMICS OF CD CLUSTERS WITH COOLING  
FLOWS  
*Period*    *Obligations*  
06/14/1991-12/14/1993                      FY93: \$0                      TOTAL: \$15,000  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
G A KRISS                      GSFC/R PETRE                      11-Astronomy

**NASA'S UNIVERSITY PROGRAM**  
**MARYLAND (Continued)**

**NAG 5-1638 Johns Hopkins University 4343**  
 A SUPERWIND FROM AN EDGE-ON STARBURST GALAXY  
*Period Obligations*  
 06/24/1991-06/30/1993 FY93: \$0 TOTAL: \$15,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 T M HECKMAN GSFC/R PETRE 11-Astronomy

**NAG 5-1673 Johns Hopkins University 4344**  
 PHASE SPACE DENSITIES OF ENERGETIC IONS  
*Period Obligations*  
 07/15/1991-07/14/1994 FY93: \$65,300 TOTAL: \$186,700  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A T LUI GSFC/G D BULLOCK 13-Physics

**NAG 5-1674 Johns Hopkins University 4345**  
 CHARACTERISTICS OF SMALL SCALE SOLAR WIND FEATURES AND  
 THEIR RELEVANCE TO TRANSIENT MAGNETOSPHERE...  
*Period Obligations*  
 07/15/1991-07/14/1994 FY93: \$65,300 TOTAL: \$187,900  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D SIBECK GSFC/G BULLOCK 13-Physics

**NAG 5-1676 Johns Hopkins University 4346**  
 COMPARATIVE STUDIES OF THE OUTER PLANETS USING IUE  
 SPECTRA  
*Period Obligations*  
 07/15/1991-07/14/1994 FY93: \$0 TOTAL: \$113,186  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 H W MOOS GSFC/D WEST 11-Astronomy

**NAG 5-1705 Johns Hopkins University 4347**  
 A COMPARATIVE STUDY OF THE ULTRAVIOLET SPECTRUM OF  
 COMET HALLEY AS OBSERVED BY T  
*Period Obligations*  
 07/15/1991-01/14/1993 FY93: \$0 TOTAL: \$30,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 P D FELDMAN GSFC/D WEST 11-Astronomy

**NAG 5-1732 Johns Hopkins University 4348**  
 A DIAGNOSTIC TOOL FOR THE INTERPRETATION OF EMISSION  
 LINE SPECTRA  
*Period Obligations*  
 08/01/1991-07/31/1993 FY93: \$0 TOTAL: \$21,600  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J KROLIK GSFC/T R KALLMAN 13-Physics

**NAG 5-1774 Johns Hopkins University 4349**  
 THE FAR-ULTRAVIOLET SPECTRA OF POWERFUL FAR-INFRARED  
 GALAXIES  
*Period Obligations*  
 09/10/1991-09/14/1992 FY93: \$0 TOTAL: \$17,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 T M HECKMAN GSFC/D WEST 11-Astronomy

**NAG 5-1775 Johns Hopkins University 4350**  
 (1) IO AND THE PLASMA TORUS AND (2) ULTRAVIOLET EMISSIONS  
 FROM SATURN AND URANUS  
*Period Obligations*  
 09/10/1991-01/31/1994 FY93: \$5,000 TOTAL: \$31,500  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 H W MOOS GSFC/D WEST 11-Astronomy

**NAG 5-1793 Johns Hopkins University 4351**  
 SCATTERING AND GRAIN DESTRUCTION IN THE CYGNUS LOOP  
*Period Obligations*  
 10/27/1991-10/31/1992 FY93: \$0 TOTAL: \$17,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 W P BLAIR GSFC/D WEST 11-Astronomy

**NAG 5-1837 Johns Hopkins University 4352**  
 RELATIONSHIP OF MID-INFRARED SPECTRA TO SOIL PROPERTIES  
*Period Obligations*  
 11/26/1991-06/14/1993 FY93: \$0 TOTAL: \$22,500  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J W SALISBURY GSFC/L S WALTER 32-Geological Sci

**NAG 5-1922 Johns Hopkins University 4353**  
 EXCITATION AND HEATING OF THE JOVIAN ATMOSPHERE  
*Period Obligations*  
 03/03/1992-03/14/1993 FY93: \$0 TOTAL: \$37,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 H W MOOS GSFC/D WEST 11-Astronomy

**NAG 5-1952 Johns Hopkins University 4354**  
 A STUDY OF COOLING FLOWS IN POOR CLUSTERS OF GALAXIES  
*Period Obligations*  
 03/26/1992-03/31/1994 FY93: \$20,000 TOTAL: \$37,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 G A KRISS GSFC/R PETRE 11-Astronomy

**NAG 5-1953 Johns Hopkins University 4355**  
 ROSAT IMAGING OF NGC 7793  
*Period Obligations*  
 03/26/1992-03/31/1994 FY93: \$0 TOTAL: \$35,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 W P BLAIR GSFC/R PETRE 11-Astronomy

**NAG 5-1991 Johns Hopkins University 4356**  
 X-RAY OBSERVATIONS OF A WIND FROM A DWARF GALAXY  
*Period Obligations*  
 06/05/1992-06/14/1994 FY93: \$25,000 TOTAL: \$40,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 T M HECKMAN GSFC/R PETRE 11-Astronomy

**NAG 5-2039 Johns Hopkins University 4357**  
 RADIATIVE AND CONVECTIVE PROCESSES  
*Period Obligations*  
 07/17/1992-01/31/1994 FY93: \$178,209 TOTAL: \$236,174  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A ARKING GSFC/K M LAU 31-Atmos Sci

**NASA'S UNIVERSITY PROGRAM**  
**MARYLAND (Continued)**

**NAG 5-2052**                      **Johns Hopkins University**                      **4358**  
 GAMMA RAY SPECTRA OF ACTIVE GALACTIC NUCLEI  
*Period*    *Obligations*  
 07/22/1992-07/31/1994                      FY93: \$42,000                      TOTAL: \$70,000  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 J H KROLIK                      GSFC/J P NORRIS                      11-Astronomy  
    .... /N WHITE

**NAG 5-2298**                      **Johns Hopkins University**                      **4365**  
 VOYAGER 2 MAPPING OF THE NW REGION OF THE VELA SUPERNOVA REMNANT  
*Period*    *Obligations*  
 06/24/1993-06/30/1994                      FY93: \$10,000                      TOTAL: \$10,000  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 W P BLAIR                      GSFC/R OLIVERSEN                      11-Astronomy

**NAG 5-2128**                      **Johns Hopkins University**                      **4359**  
 OPTIMAL TEMPORAL SAMPLING INTERVALS FOR DETECTING LANDSCAPE VEGETATION CHANGES  
*Period*    *Obligations*  
 10/28/1992-10/31/1993                      FY93: \$22,000                      TOTAL: \$22,000  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 J KOU                      GSFC/E HALL                      39-Env Sci, NEC  
    .... /D E SMITH

**NAG 5-2299**                      **Johns Hopkins University**                      **4366**  
 OBSERVATIONS OF HOT GAS WITH VOYAGER  
*Period*    *Obligations*  
 06/30/1993-06/30/1994                      FY93: \$10,000                      TOTAL: \$10,000  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 J N MURTHY                      GSFC/R OLIVERSEN                      11-Astronomy

**NAG 5-2141**                      **Johns Hopkins University**                      **4360**  
 OBSERVATIONS OF COMETS WITH THE IUE  
*Period*    *Obligations*  
 11/13/1992-01/31/1994                      FY93: \$13,530                      TOTAL: \$13,530  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 D D FELDMAN                      GSFC/D WEST                      11-Astronomy

**NAG 5-2341**                      **Johns Hopkins University**                      **4367**  
 VOYAGER INVESTIGATION OF THE COSMIC DIFFUSE BACKGROUND AND OBS. OF ROCKET-STUDIED LOCATIONS . . . .  
*Period*    *Obligations*  
 07/27/1993-07/31/1994                      FY93: \$10,000                      TOTAL: \$10,000  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 R B HENRY                      GSFC/R OLIVERSEN                      11-Astronomy

**NAG 5-2222**                      **Johns Hopkins University**                      **4361**  
 MARS OBSERVER LASER ALTIMETER INVESTIGATION  
*Period*    *Obligations*  
 03/10/1993-03/14/1994                      FY93: \$40,368                      TOTAL: \$40,368  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 M T ZUBER                      GSFC/D E SMITH                      32-Geological Sci

**NAG 5-2342**                      **Johns Hopkins University**                      **4368**  
 OBSERVATION OF STAR FUV ABSOLUTE FLUX APPLIED TO INTERSTELLAR GRAIN AND STELLAR ATMOSPHERIC PROPERTIES  
*Period*    *Obligations*  
 07/27/1993-07/31/1994                      FY93: \$5,000                      TOTAL: \$5,000  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 R H BUSS                      GSFC/R OLIVERSEN                      11-Astronomy

**NAG 5-2223**                      **Johns Hopkins University**                      **4362**  
 THE ROLE OF LITHOSPHERE STRUCTURE IN LARGE SCALE COMPRESSIONAL AND EXTENSIONAL PERFORMANCE  
*Period*    *Obligations*  
 03/09/1993-03/14/1994                      FY93: \$36,104                      TOTAL: \$36,104  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 M T ZUBER                      GSFC/S COHEN                      32-Geological Sci

**NAG 5-5016**                      **Johns Hopkins University**                      **4369**  
 DENSITY AND TEMPERATURE MEASUREMENTS FOR MAP IN THE STUDIES OF MESOSPHERIC AND LOWER THERMOSPHERIC  
*Period*    *Obligations*  
 05/28/1993-01/31/1994                      FY93: \$33,000                      TOTAL: \$33,000  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 J H YEE                      GSFC/L J EARLY                      13-Physics  
    .... /R H PLESS

**NAG 5-2232**                      **Johns Hopkins University**                      **4363**  
 RECEIVER DESIGN, PERFORMANCE ANALYSIS, AND EVALUATION FOR SPACE-BORNE LASER ALTIMETERS AND . . . .  
*Period*    *Obligations*  
 04/08/1993-04/14/1994                      FY93: \$59,892                      TOTAL: \$59,892  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 M DAVIDSON                      GSFC/B ABSHIRE                      45-Elec Engr  
    .... /A R RALL

**NAG 8-857**                      **Johns Hopkins University**                      **4370**  
 LUNAR TELESCOPE ACTIVE OPTICS SYSTEMS  
*Period*    *Obligations*  
 10/11/1990-10/31/1991                      FY93: \$1,584                      TOTAL: \$18,416  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 C C KILGUS                      MSFC/M E NEIN                      11-Astronomy

**NAG 5-2276**                      **Johns Hopkins University**                      **4364**  
 PROBING THE JOVIAN MAGNETOSPHERE BY ANALYZING ITS EUV EMISSIONS  
*Period*    *Obligations*  
 05/26/1993-06/14/1994                      FY93: \$37,907                      TOTAL: \$37,907  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 H W MOOS                      GSFC/R OLIVERSEN                      11-Astronomy

**NAG 9-654**                      **Johns Hopkins University**                      **4371**  
 ENHANCEMENT OF CELL FUNCTION IN CULTURE BY CONTROLLED AGGREGATION  
*Period*    *Obligations*  
 10/28/1992-12/01/1993                      FY93: \$120,000                      TOTAL: \$120,000  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 W M SALTZMAN                      JSC/G SPAULDING                      51-Biological Sci  
 K W LEONG

**NASA'S UNIVERSITY PROGRAM**  
**MARYLAND (Continued)**

**NAGW 648 Johns Hopkins University 4372**  
 PLANETARY AERONOMY  
*Period Obligations*  
 09/01/1984-12/31/1992 FY93: \$91,000 TOTAL: \$740,896  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D F STROBEL HQ/J T BERGSTRALH 31-Atmos Sci  
 ....W L QUAIDE

**NAGW 1650 Johns Hopkins University 4373**  
 CORRELATIVE STUDIES OF SOLAR-PLANETARY RELATIONSHIPS  
*Period Obligations*  
 03/02/1989-03/31/1993 FY93: \$115,500 TOTAL: \$560,432  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 T A PSTEMRA HQ/M M MELLOTT 13-Physics

**NAGW 1750 Johns Hopkins University 4374**  
 MANTLE PLUME DYNAMICS IN THE TERRESTRIAL PLANETS  
*Period Obligations*  
 06/15/1989-03/31/1992 FY93: \$0 TOTAL: \$45,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 P OLSON HQ/J R UNDERWOOD 32-Geological Sci

**NAGW 1885 Johns Hopkins University 4375**  
 MID INFRARED SPECTROSCOPIC INVESTIGATIONS  
*Period Obligations*  
 12/06/1989-09/30/1993 FY93: \$138,600 TOTAL: \$534,600  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J W SALISBURY HQ/T A MAXWELL 32-Geological Sci  
 ....M BALTUCK

**NAGW 1890 Johns Hopkins University 4376**  
 ISSUES IN THE STUDY OF THE DIFFUSE COSMIC BACKGROUND RADIATION  
*Period Obligations*  
 12/14/1989-10/31/1993 FY93: \$66,000 TOTAL: \$409,907  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R C HENRY HQ/G C CLAYTON 31-Atmos Sci

**NAGW 2012 Johns Hopkins University 4377**  
 INNER PARTS OF ACTIVE GALAXIES  
*Period Obligations*  
 02/20/1990-09/30/1992 FY93: \$0 TOTAL: \$98,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J H KROLIK HQ/G C CLAYTON 19-Phys Sci, NEC

**NAGW 2059 Johns Hopkins University 4378**  
 SOLAR WIND CONTROL OF DAYSIDE IONOSPHERIC CONVECTION  
*Period Obligations*  
 05/04/1990-03/31/1994 FY93: \$70,900 TOTAL: \$251,400  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 K B BAKER HQ/M M MELLOTT 13-Physics  
 ....T PERRY

**NAGW 2148 Johns Hopkins University 4379**  
 NAGW-2148/JOHN HOPKINS UNIV/A PROPOSAL TO INVESTIGATE THE GENERATION, PROPAGATION AND EFFECTS OF INTERPLANETARY MAGNETIC FIELDS  
*Period Obligations*  
 07/09/1990-05/31/1993 FY93: \$0 TOTAL: \$168,275  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D F STROBEL HQ/R D MCPETERS 31-Atmos Sci  
 ....M J PRATHER

**NAGW 2178 Johns Hopkins University 4380**  
 HOT OXYGEN IN EXOSPHERE OF VENUS: ANALYSIS OF THE ORBITER ULTRAVIOLET SPECTROMETER DATA  
*Period Obligations*  
 08/14/1990-12/31/1992 FY93: \$0 TOTAL: \$36,300  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 L J PAXTON HQ/J BERGSTRALH 11-Astronomy

**NAGW 2307 Johns Hopkins University 4381**  
 NAGW-2307/JOHNS HOPKINS UNIV/JHU PARTICIPATION IN THE PHYSICAL AND CHEMICAL EVOLUTION OF PROTOSTELLAR CLOUDS  
*Period Obligations*  
 12/14/1990-10/31/1993 FY93: \$10,922 TOTAL: \$34,528  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D A NEUFELD HQ/J A NUTH 19-Phys Sci, NEC

**NAGW 2373 Johns Hopkins University 4382**  
 ENERGETIC PARTICLE TRANSPORT, SOURCES, AND LOSSES AT NEPTUNE  
*Period Obligations*  
 02/25/1991-02/28/1994 FY93: \$70,000 TOTAL: \$200,200  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A F CHENG HQ/W L QUAIDE 19-Phys Sci, NEC

**NAGW 2416 Johns Hopkins University 4383**  
 CONTINUED DEVELOPMENT OF AN ULTRA-NARROW BANDPASS FILTER FOR SOLAR RESEARCH  
*Period Obligations*  
 04/25/1991-10/31/1992 FY93: \$0 TOTAL: \$155,800  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D M RUST HQ/W J WAGNER 13-Physics  
 ....K LANG

**NAGW 2433 Johns Hopkins University 4384**  
 RESEARCH OF NEPTUNE'S MAGNETOSPHERE  
*Period Obligations*  
 03/15/1991-12/31/1993 FY93: \$85,800 TOTAL: \$245,300  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 B H MAUK HQ/W L QUAIDE 19-Phys Sci, NEC

**NAGW 2443 Johns Hopkins University 4385**  
 NAGW-2443/JOHNS HOPKINS UNIV/TRITON AERONOMY: VOYAGER UVS DATA ANALYSIS  
*Period Obligations*  
 04/22/1991-03/31/1994 FY93: \$62,336 TOTAL: \$163,111  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D F STROBEL HQ/W L QUAIDE 19-Phys Sci, NEC

**NAGW 2508 Johns Hopkins University 4386**  
 THE STUDY OF CLUSTERS OF GALAXIES AND LARGE-SCALE STRUCTURE  
*Period Obligations*  
 07/25/1991-04/30/1994 FY93: \$99,900 TOTAL: \$285,600  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R BURG HQ/G S KUTTER 11-Astronomy  
 ....G R RIEGLER

**NASA'S UNIVERSITY PROGRAM**  
**MARYLAND (Continued)**

**NAGW 2583 Johns Hopkins University 4387**  
 NAGW-2583/JOHN HOPKINS UNIV/MODELING PERPENDICULAR  
 CURRENT SHEETS IN THE EARTH'S MAGNETOTAIL  

<i>Period</i>	<i>Obligations</i>	
08/12/1991-05/31/1994	FY93: \$74,384	TOTAL: \$227,384
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
D G MITCHELL	HQ/M M MELLOTT	13-Physics
	....J D BOHLIN	

**NAGW 2874 Johns Hopkins University 4394**  
 ADAPTABILITY, VARIABILITY, AND CHAOS IN THE VESTIBULAR AND  
 OCULOMOTOR SYSTEMS  

<i>Period</i>	<i>Obligations</i>	
02/10/1992-02/28/1994	FY93: \$97,346	TOTAL: \$200,983
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
M J SHELHAMER	HQ/J K ALEXANDER	56-Medical Sciences
	....D A HOLLAND	

**NAGW 2619 Johns Hopkins University 4388**  
 PARTICLE ACCELERATION AND PROPAGATION IN THE OUTER  
 HELIOSPHERE  

<i>Period</i>	<i>Obligations</i>	
07/17/1991-02/28/1994	FY93: \$40,000	TOTAL: \$120,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
R B DECKER	HQ/W V JONES	13-Physics
	....J C LING	

**NAGW 2892 Johns Hopkins University 4395**  
 THE OUTER REGIONS OF DISK GALAXIES: HOW DO DISKS FORM?  

<i>Period</i>	<i>Obligations</i>	
02/19/1992-12/31/1992	FY93: \$45,043	TOTAL: \$90,043
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
R F WYSE	HQ/R STACHNIK	11-Astronomy
	....E J WEILER	

**NAGW 2691 Johns Hopkins University 4389**  
 AUTOMATED UNFOLDING OF GLOBAL MAGNETOSPHERIC IMAGE S  

<i>Period</i>	<i>Obligations</i>	
08/07/1991-05/31/1994	FY93: \$66,167	TOTAL: \$197,558
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
B H MAUK	HQ/M M MELLOTT	13-Physics
	....J D BOHLIN	

**NAGW 2910 Johns Hopkins University 4396**  
 LYMAN ALPHA OBSERVATIONS AS A PROBE OF DISTANT GAL  
 AXIES  

<i>Period</i>	<i>Obligations</i>	
02/20/1992-01/31/1994	FY93: \$0	TOTAL: \$35,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
D A NEUFELD	HQ/R STACHNIK	11-Astronomy
	....E J WEILER	

**NAGW 2719 Johns Hopkins University 4390**  
 SYNTHETIC APERTURE RADAR (SAR) OCEAN WAVE RESEARCH:  
 METEOROLOGICAL APPLICATIONS PROGRAM  

<i>Period</i>	<i>Obligations</i>	
09/16/1991-09/30/1993	FY93: \$70,000	TOTAL: \$120,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
R C BEAL	HQ/W C PATZERT	31-Atmos Sci
	....J S THEON	

**NAGW 3052 Johns Hopkins University 4397**  
 QUANTITATIVE ANALYSIS OF EMIC WAVE-PARTICLE INTERA  
 CTIONS  

<i>Period</i>	<i>Obligations</i>	
05/15/1992-03/31/1994	FY93: \$70,000	TOTAL: \$140,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
B J ANDERSON	HQ/E C WHIPPLE	13-Physics
	....J D BOHLIN	

**NAGW 2803 Johns Hopkins University 4391**  
 INFRARED SPECTRA OF OBSCURED ACTIVE GALACTIC NUCLEI  

<i>Period</i>	<i>Obligations</i>	
01/03/1992-09/30/1992	FY93: \$0	TOTAL: \$55,353
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
J H KROLIK	HQ/L J CAROFF	11-Astronomy

**NAGW 3056 Johns Hopkins University 4398**  
 A FEEDBACK CONTROL SYSTEM TO QUANTITATIVELY REDUCE  
 AMBULATORY FORCES ON LIMB BONES  

<i>Period</i>	<i>Obligations</i>	
04/15/1992-06/30/1993	FY93: \$0	TOTAL: \$20,040
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
L SCHULTHEIS	HQ/J K ALEXANDER	59-Life Sci, NEC
	....D A HOLLAND	

**NAGW 2854 Johns Hopkins University 4392**  
 AN EMPIRICAL MODEL OF IONOSPHERIC MAPPING BASED ON  
 MAGNETOSPHERIC PRECIPITATION SOURCES  

<i>Period</i>	<i>Obligations</i>	
01/31/1992-03/31/1994	FY93: \$65,000	TOTAL: \$125,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
P J NEWELL	HQ/D L REASONER	13-Physics
	....J D BOHLIN	

**NAGW 3058 Johns Hopkins University 4399**  
 NAGW-3058/JOHNS HOPKINS UNIV/GROUND-SATELLITE  
 OBSERVATIONS OF P12 PULSATIONS  

<i>Period</i>	<i>Obligations</i>	
04/27/1992-03/31/1994	FY93: \$60,000	TOTAL: \$120,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
K TAKAHASHI	HQ/E C WHIPPLE	13-Physics
	....J D BOHLIN	

**NAGW 2866 Johns Hopkins University 4393**  
 INTEGRATED DUAL IMAGING DETECTOR  

<i>Period</i>	<i>Obligations</i>	
02/10/1992-02/14/1994	FY93: \$217,100	TOTAL: \$426,500
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
D M RUST	HQ/J K ALEXANDER	11-Astronomy
	....D A HOLLAND	

**NAGW 3068 Johns Hopkins University 4400**  
 AN INTERNATIONAL ORGANIZATION FOR REMOTE SENSING AND  
 DATA DISTRIBUTION FOR EARTH OBSERVATION  

<i>Period</i>	<i>Obligations</i>	
05/06/1992-03/31/1993	FY93: \$0	TOTAL: \$9,480
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
B I EDELSON	HQ/S G TILFORD	39-Env Sci, NEC
D FINERTY	....G A LESANE	

**NASA'S UNIVERSITY PROGRAM**  
**MARYLAND (Continued)**

**NAGW 3090 Johns Hopkins University 4401**  
 VARIABILITY ANALYSIS AND THE STRUCTURE OF ACTIVE GALACTIC NUCLEI  
*Period* *Obligations*  
 06/12/1992-04/30/1993 FY93: \$0 TOTAL: \$51,000  
*Prin. Invest.* *NASA Tech. Officer*  
 J H KROLIK HQ/R STACHNIK CASE Category  
 ....E J WEILER 11-Astronomy

**NAGW 3129 Johns Hopkins University 4402**  
 NAGW-3129/JOHN HOPKINS UNIV/FUNDAMENTAL ISSUES IN THE PHYSICS OF PAIR PLASMAS  
*Period* *Obligations*  
 07/14/1992-04/30/1993 FY93: \$0 TOTAL: \$40,000  
*Prin. Invest.* *NASA Tech. Officer*  
 J H KROLIK HQ/L J KALUZIENSKI CASE Category  
 ....A N BUNNER 11-Astronomy

**NAGW 3147 Johns Hopkins University 4403**  
 NAGW-3147/JOHNS HOPKINS UNIV/A MULTIWAVELENGTH STUDY OF MOLECULES IN THE INTERSTELLAR MEDIUM  
*Period* *Obligations*  
 08/04/1992-05/31/1993 FY93: \$0 TOTAL: \$92,081  
*Prin. Invest.* *NASA Tech. Officer*  
 D NEUFELD HQ/G R REGLER CASE Category  
 11-Astronomy

**NAGW 3156 Johns Hopkins University 4404**  
 NAGW-3156/JOHNS HOPKINS UNIV/VARIABILITY ANALYSIS AND THE STRUCTURE OF ACTIVE GALACTIC NUCLEI  
*Period* *Obligations*  
 09/04/1992-10/31/1994 FY93: \$134,640 TOTAL: \$222,890  
*Prin. Invest.* *NASA Tech. Officer*  
 J KROLIK HQ/G R RIEGLER CASE Category  
 11-Astronomy

**NAGW 3183 Johns Hopkins University 4405**  
 NAGW-3183/JOHNS HOPKINS UNIV/MISSION SCIENTIST ON THE EUROPEAN SPACE AGENCY INFRARED SPACE OBSERVATORY  
*Period* *Obligations*  
 09/15/1992-06/30/1993 FY93: \$18,808 TOTAL: \$28,808  
*Prin. Invest.* *NASA Tech. Officer*  
 D A NEUFELD HQ/L J CAROFF CASE Category  
 11-Astronomy

**NAGW 3257 Johns Hopkins University 4406**  
 NAGW-3257/JOHNS HOPKINS UNIV/LIGHT AND OPTICS EXPERIMENTS FOR ELEMENTARY SCHOOL CHILDREN  
*Period* *Obligations*  
 10/26/1992-07/31/1993 FY93: \$4,910 TOTAL: \$4,910  
*Prin. Invest.* *NASA Tech. Officer*  
 J H KROLIK HQ/L S LAPIANA CASE Category  
 ....G P NEWTON 11-Astronomy

**NAGW 3288 Johns Hopkins University 4407**  
 NAGW-3288/JOHNS HOPKINS UNIV/HIGH ENERGY ASTROPHYSICS RESEARCH AND ANALYSIS PROGRAM  
*Period* *Obligations*  
 11/27/1992-12/31/1992 FY93: \$83,985 TOTAL: \$83,985  
*Prin. Invest.* *NASA Tech. Officer*  
 R E GRIFFITHS HQ/L KALUZIENSKI CASE Category  
 11-Astronomy

**NAGW 3387 Johns Hopkins University 4408**  
 SPACEBORNE GEOPHYSICAL SAMPLING DEVICE  
*Period* *Obligations*  
 02/25/1993-03/31/1994 FY93: \$150,000 TOTAL: \$150,000  
*Prin. Invest.* *NASA Tech. Officer*  
 A F CHENG HQ/H C BRINTON CASE Category  
 19-Phys Sci, NEC

**NAGW 3394 Johns Hopkins University 4409**  
 PLANETARY GEOPHYSICS AND VOLCANISM  
*Period* *Obligations*  
 04/01/1993-02/28/1994 FY93: \$44,510 TOTAL: \$44,510  
*Prin. Invest.* *NASA Tech. Officer*  
 M T ZUBER HQ/J M BOYCE CASE Category  
 32-Geological Sci

**NAGW 3449 Johns Hopkins University 4410**  
 CROSS FIELD CURRENT DISRUPTION MECHANISM FOR SUBSTORM INITIATION  
*Period* *Obligations*  
 03/19/1993-02/28/1994 FY93: \$70,000 TOTAL: \$70,000  
*Prin. Invest.* *NASA Tech. Officer*  
 A Y LUI HQ/E C WHIPPLE CASE Category  
 13-Physics  
 ....G L WITHBROE

**NAGW 3523 Johns Hopkins University 4411**  
 SUBSTORMS AND MAGNETIC FLUX EROSION  
*Period* *Obligations*  
 04/14/1993-01/31/1994 FY93: \$50,000 TOTAL: \$50,000  
*Prin. Invest.* *NASA Tech. Officer*  
 D G SIBECK HQ/E C WHIPPLE CASE Category  
 13-Physics  
 ....G L WITHBROE

**NAGW 3697 Johns Hopkins University 4412**  
 VENUS TECTONICS AND LITHOSPHERE STRUCTURE  
*Period* *Obligations*  
 09/07/1993-07/31/1996 FY93: \$65,002 TOTAL: \$65,002  
*Prin. Invest.* *NASA Tech. Officer*  
 M T ZUBER HQ/J T BERGSTRALH CASE Category  
 32-Geological Sci

**NAS 5-26848 Johns Hopkins University 4413**  
 PERFORM DEFINITION PHASE INVESTIGATION OF A MULTISPECTRAL AURORAL IMAGING DEVICE FOR OPEN  
*Period* *Obligations*  
 12/20/1982-07/01/1995 FY93: \$0 TOTAL: \$318,500  
*Prin. Invest.* *NASA Tech. Officer*  
 P D FELDMAN GSFC/F WAINSCOTT CASE Category  
 19-Phys Sci, NEC

**NAS 5-27000 Johns Hopkins University 4414**  
 DEVELOPMENT PHASE OF THE HOPKINS ULTRAVIOLET TELESCOPE  
*Period* *Obligations*  
 09/21/1981-03/31/1994 FY93: \$2,525,900 TOTAL: \$28,649,900  
*Prin. Invest.* *NASA Tech. Officer*  
 A DAVIDSEN MSFC/J H OWENS CASE Category  
 11-Astronomy

**NAS 5-30403 Johns Hopkins University 4415**  
 SPACE TELESCOPE IMAGING SPECTROGRAPH PROGRAM SUPPORT  
*Period* *Obligations*  
 02/04/1988-09/30/1993 FY93: \$0 TOTAL: \$353,806  
*Prin. Invest.* *NASA Tech. Officer*  
 W MOOS GSFC/D VITABLANO CASE Category  
 41-Aero Engr

**NASA'S UNIVERSITY PROGRAM**  
**MARYLAND (Continued)**

**NAS 5-31248 Johns Hopkins University 4416**  
 PHASE B DEFINITION OF LYMAN FOR ULTRAVIOLET  
*Period Obligations*  
 08/01/1990-09/30/1994 FY93: \$2,766,026 TOTAL: \$5,821,192  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 W MOOS GSFC/E F THOMAS 11-Astronomy

**NAS 5-31373 Johns Hopkins University 4417**  
 EOS INVESTIGATION  
*Period Obligations*  
 12/13/1991-12/14/2001 FY93: \$70,000 TOTAL: \$130,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J SALISBURY GSFC/H BLODGET 31-Atmos Sci

**NAS 5-32029 Johns Hopkins University 4418**  
 325 M BITTS QUATERNARY PULSE POSITION MODULATION (QPPM)  
 OPTICAL RECEIVER TESTBED  
*Period Obligations*  
 06/15/1992-07/15/1992 FY93: \$0 TOTAL: \$111,776  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 F M DAVIDSON GSFC/A J MARTINO 45-Elec Engr  
 X SUN ....M A KRAINAK

**NAS 9-18758 Johns Hopkins University 4419**  
 SLS-3 FLIGHT EXPERIMENT/STABILITY AND PRECISION OF H UMAN  
 PERFORMANCE DURING SPACELAB MISSION  
*Period Obligations*  
 08/28/1992-03/15/1993 FY93: \$78,388 TOTAL: \$108,388  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J V BRADY JSC/V S ELLERBE 51-Biological Sci

**NGT 00-040-004 Johns Hopkins University 4420**  
 NATIONAL SPACE GRANT COLLEGE  
*Period Obligations*  
 10/04/1989-01/31/1994 FY93: \$323,000 TOTAL: \$1,423,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R C HENRY HQ/E T SCHWARTZ 99-Multi-Discip

**NGT 00-050-486 Johns Hopkins University 4421**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 07/31/1989-09/30/1992 FY93: \$0 TOTAL: \$62,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A PROSPERETTI HQ/F C OWENS 46-Mech Engr

**NGT 00-050-587 Johns Hopkins University 4422**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 08/31/1990-08/31/1994 FY93: \$22,000 TOTAL: \$88,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M T ZUBER HQ/J T LYNCH 32-Geological Sci

**NGT 00-051-134 Johns Hopkins University 4423**  
 GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 07/19/1993-08/31/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 W M SALTZMAN HQ/G LASANE 43-Chem Engr

**NSG-1442 Johns Hopkins University 4424**  
 ASPECTS OF SOME TRANSIENT FAULTS IN COMPUTER-BASED  
 SYSTEMS  
*Period Obligations*  
 08/16/1977-02/28/1993 FY93: \$0 TOTAL: \$959,987  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 G E MASSON LARC/F L PITTS 45-Elec Engr  
 ....C M BELCASTRO

**NSG-5393 Johns Hopkins University 4425**  
 STUDIES OF THE ULTRAVIOLET SPECTRA OF ASTRONOMICAL  
 SOURCES  
*Period Obligations*  
 07/01/1979-09/30/1992 FY93: \$0 TOTAL: \$1,092,652  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 H W MOOS GSFC/D WEST 11-Astronomy  
 P D FELDMAN  
 J G LUHMANN

**NGT 00-030-209 Loyola College 4426**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
 08/26/1993-08/31/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 G FEELEY-HARNIK HQ/G ASRAR 99-Multi-Discip  
 ....D M BUTLER

**NAG 1-1492 Morgan State University 4427**  
 CENTER FOR EXCELLENCE IN UNDERGRADUATE RESEARCH IN  
 SCIENCE AND MATHEMATICS (CURE-SAM) NLPN 92-1021  
*Period Obligations*  
 03/02/1993-03/01/1994 FY93: \$227,952 TOTAL: \$227,952  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A L TEATE LARC/K H ABBOTT 29-Math/Computer, NEC  
 C M WILLIAMS  
 F W OLIVER

**NAG 5-1942 Morgan State University 4428**  
 MAINTENANCE AND TRAINING SUPPORT FOR THE ETA-10 SU  
 PERCOMPUTER (A COMPONENT OF MU-SPIN)  
*Period Obligations*  
 03/13/1992-03/14/1993 FY93: \$0 TOTAL: \$237,096  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 G E PETERSON GSFC/J BENNETT 29-Math/Computer, NEC  
 W LUPTON

**NCA 5-105 Morgan State University 4429**  
 ENGINEERING ENRICHMENT PROGRAM  
*Period Obligations*  
 06/26/1985-05/31/1994 FY93: \$60,000 TOTAL: \$457,901  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 C WHITE GSFC/D MENCHAN 49-Engr, NEC

**NCA 5-113 Morgan State University 4430**  
 EARTHWATCH—CAREER EXPLORATION FOR HIGH SCHOOL STUD  
 ENTS IN THE FIELD OF COMPUTATIONAL ENG AND SCIENCE  
*Period Obligations*  
 07/09/1991-07/31/1992 FY93: \$0 TOTAL: \$8,535  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 N WILLOUGHBY GSFC/D MENCHAN 22-Computer Science

**NASA'S UNIVERSITY PROGRAM**  
**MARYLAND (Continued)**

**NGT 00-090-042 Morgan State University 4431**  
 NAGW-90042/MORGAN STATE UNIV/UNDERGRADUATE STUDENT RESEARCHERS PROGRAM (UMF)  

<i>Period</i>	<i>Obligations</i>	
08/14/1992-08/31/1994	FY93: \$36,000	TOTAL: \$106,622
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
E DELOATCH	HQ/D RUSSELL	49-Engr, NEC

**NGT 00-090-116 Morgan State University 4432**  
 UNDERGRADUATE STUDENT RESEARCHERS PROGRAM (UMF)  

<i>Period</i>	<i>Obligations</i>	
09/24/1992-08/14/1994	FY93: \$12,000	TOTAL: \$24,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
E DELOATCH	HQ/D K RUSSELL	99-Multi-Discip

**NGT 00-090-117 Morgan State University 4433**  
 UNDERGRADUATE STUDENT RESEARCHERS PROGRAM (UMF)  

<i>Period</i>	<i>Obligations</i>	
09/24/1992-08/14/1994	FY93: \$12,000	TOTAL: \$24,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
E DELOATCH	HQ/D K RUSSELL	99-Multi-Discip

**NGT 00-090-158 Prince George's Community College 4434**  
 PGCC-NASA COLLEGIATE PROGRAM  

<i>Period</i>	<i>Obligations</i>	
05/13/1993-10/31/1995	FY93: \$117,085	TOTAL: \$117,085
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
P A CUNIFF	GSFC/D MENCHAN	99-Multi-Discip

**NGT 00-050-611 Uniformed Services University 4435**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  

<i>Period</i>	<i>Obligations</i>	
07/05/1990-08/31/1993	FY93: \$0	TOTAL: \$66,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
N E GRUNBERG	HQ/F C OWENS	69-Psych, NEC

**NAG 1-1172 Univ of Maryland Baltimore Profsnl School 4436**  
 OUTREACH PROGRAM FOR FEDERAL LABS: NASA  

<i>Period</i>	<i>Obligations</i>	
09/27/1990-09/23/1992	FY93: \$1	TOTAL: \$199,661
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
F A HRABOYSKI	LARC/S E MASSENBERG	99-Multi-Discip
S BOYER		

**NAG 5-1593 University of Maryland - Baltimore 4437**  
 LABORATORY SPECTROSCOPY TO SUPPORT THE AIRS SOUNDER  

<i>Period</i>	<i>Obligations</i>	
05/20/1991-05/31/1994	FY93: \$50,000	TOTAL: \$150,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
L L STROW	GSFC/J SUSSKIND	31-Atmos Sci

**NAGW 1020 University of Maryland - Baltimore 4438**  
 LAB STUDIES OF VIBRATION-ROTATION LINESHAPES  

<i>Period</i>	<i>Obligations</i>	
03/01/1987-12/14/1991	FY93: \$0	TOTAL: \$218,166
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
L L STROW	HQ/M J KURYLO	31-Atmos Sci
	...../R T WATSON	

**NAGW 2649 University of Maryland - Baltimore 4439**  
 MATHEMATICAL BIOLOGY FOR SUPPORT OF CLINICAL DECISIONS  

<i>Period</i>	<i>Obligations</i>	
09/03/1991-03/14/1994	FY93: \$139,999	TOTAL: \$434,970
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
W P COLEMAN	HQ/R J WHITE	59-Life Sci, NEC

**NAS 5-31378 University of Maryland - Baltimore 4440**  
 EOS EXECUTION PHASE  

<i>Period</i>	<i>Obligations</i>	
12/16/1991-12/16/2001	FY93: \$151,000	TOTAL: \$291,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
L L STROW	GSFC/E R KREINS	39-Env Sci, NEC

**NGT 00-090-137 University of Maryland - Baltimore 4441**  
 UNDERGRADUATE STUDENT RESEARCHERS PROGRAM  

<i>Period</i>	<i>Obligations</i>	
09/24/1992-08/14/1994	FY93: \$12,000	TOTAL: \$24,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
E BAKER	HQ/D K RUSSELL	99-Multi-Discip

**NGT 00-090-155 University of Maryland - Baltimore 4442**  
 OUTREACH PROGRAM FOR FEDERAL LABS  

<i>Period</i>	<i>Obligations</i>	
01/13/1993-01/14/1994	FY93: \$99,900	TOTAL: \$99,900
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
F HRABOYSKI	LARC/R LANG	99-Multi-Discip
	....../B WHITE	

**NGT 00-090-180 University of Maryland - Baltimore 4443**  
 UNDERGRADUATE STUDENT RESEARCHERS PROGRAM  

<i>Period</i>	<i>Obligations</i>	
08/27/1990-08/14/1994	FY93: \$12,000	TOTAL: \$12,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
E BAKER	HQ/D K RUSSELL	99-Multi-Discip

**NAG 1-985 University of Maryland - College Park 4444**  
 AEROELASTIC OPTIMIZATION OF A HELICOPTER ROTOR  

<i>Period</i>	<i>Obligations</i>	
04/24/1989-03/31/1993	FY93: \$1	TOTAL: \$172,519
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
I CHOPRA	LARC/J L WALSH	41-Aero Engr
	....../K W NOONAN	

**NAG 1-1089 University of Maryland - College Park 4445**  
 APPLICATION OF LARGE EDDY SIMULATIONS TO TRANSITIONAL CHANNEL FLOWS  

<i>Period</i>	<i>Obligations</i>	
01/18/1990-01/14/1994	FY93: \$38,915	TOTAL: \$173,412
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
U PIOMELLI	LARC/T A ZANG	41-Aero Engr
	....../A KUMAR	

**NAG 1-1192 University of Maryland - College Park 4446**  
 STUDIES OF ADVANCED HYPERSONIC WAVE RIDER CONFIGURATIONS  

<i>Period</i>	<i>Obligations</i>	
10/26/1990-08/21/1993	FY93: \$73,430	TOTAL: \$199,168
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
J D ANDERSON	LARC/S BAUER	41-Aero Engr
M J LEWIS	....../D S MILLER	



**NASA'S UNIVERSITY PROGRAM**  
**MARYLAND (Continued)**

**NAG 1-1253 University of Maryland - College Park 4447**  
 DYNAMIC ANALYSIS OF AN ADVANCED TILT ROTOR

Period	Obligations	
04/15/1991-03/31/1994	FY93: \$0	TOTAL: \$125,083
Prin. Invest.	NASA Tech. Officer	CASE Category
I CHOPRA	LARC/W T YEAGER	41-Aero Engr

**NAG 1-1285 University of Maryland - College Park 4448**  
 SPACECRAFT TRAJECTORY OPTIMIZATION FOR CONTROLLED RADIATION EXPOSURE

Period	Obligations	
06/03/1991-12/31/1992	FY93: \$0	TOTAL: \$50,892
Prin. Invest.	NASA Tech. Officer	CASE Category
M J LEWIS	LARC/J E NEALY	42-Astro Engr

**NAG 1-1333 University of Maryland - College Park 4449**  
 UNSTEADY FLOW PROPERTIES OF TYPE IV SHOCK/SHOCK INTERACTIONS

Period	Obligations	
09/06/1991-09/01/1993	FY93: \$26,554	TOTAL: \$52,837
Prin. Invest.	NASA Tech. Officer	CASE Category
M J LEWIS	LARC/A KUMAR	41-Aero Engr
J D ANDERSON		
B L HUNT		

**NAG 1-1384 University of Maryland - College Park 4450**  
 COMPUTATIONAL HEAT TRANSFER STUDIES OF SWEEP RAMP FUEL INJECTORS FOR SUPERSONIC COMBUSTION

Period	Obligations	
02/13/1992-01/20/1994	FY93: \$779	TOTAL: \$44,473
Prin. Invest.	NASA Tech. Officer	CASE Category
J D ANDERSON	LARC/G B NORTHAM	41-Aero Engr
E S SEITERT		

**NAG 1-1485 University of Maryland - College Park 4451**  
 SCALABLE RUNTIME SUPPORT FOR SPARSE AND ADAPTIVE COMPUTATIONS

Period	Obligations	
03/01/1993-02/28/1994	FY93: \$491,922	TOTAL: \$491,922
Prin. Invest.	NASA Tech. Officer	CASE Category
J H SALTZ	LARC/E J PRIOR	22-Computer Science
	....M D SALAS	

**NAG 1-1521 University of Maryland - College Park 4452**  
 A NEURAL NETWORK BASED HELICOPTER SIMULATOR NLPN 93-442

Period	Obligations	
07/19/1993-07/18/1994	FY93: \$53,264	TOTAL: \$53,264
Prin. Invest.	NASA Tech. Officer	CASE Category
C Z SUN	LARC/G W WALKER	22-Computer Science
	....A E PHELPS	

**NAG 1-1528 University of Maryland - College Park 4453**  
 EXPERIMENTAL AND NUMERICAL STUDY OF A 3-D, SHEAR- DRIVEN BOUNDARY LAYER NLPN 93-504

Period	Obligations	
07/14/1993-07/13/1994	FY93: \$25,000	TOTAL: \$25,000
Prin. Invest.	NASA Tech. Officer	CASE Category
J M WALLACE	LARC/M J WALSH	41-Aero Engr
U PIOMELLI		

**NAG 1-1540 University of Maryland - College Park 4454**  
 DYNAMICS AND CONTROL OF SUPERSONIC/HYPERSONIC VEHICLES -- A MULTIDISCIPLINARY STUDY NLPN 93-410

Period	Obligations	
08/24/1993-02/23/1995	FY93: \$60,000	TOTAL: \$60,000
Prin. Invest.	NASA Tech. Officer	CASE Category
D K SCHMIDT	LARC/L M GREGORY	41-Aero Engr
J D ANDERSON		
M J LEWIS		

**NAG 2-409 University of Maryland - College Park 4455**  
 AEROELASTIC STABILITY ANALYSIS OF BEARINGLESS ROTORS IN FORWARD FLIGHT.

Period	Obligations	
06/01/1986-05/31/1993	FY93: \$0	TOTAL: \$394,888
Prin. Invest.	NASA Tech. Officer	CASE Category
I CHOPRA	ARC/K Q NGUYEN	41-Aero Engr
	....R L PETERSON	

**NAG 2-557 University of Maryland - College Park 4456**  
 HIGH RESOLUTION FAR-INFRARED STUDIES OF COMPACT REGIONS OF STAR-FORMING MOLECULAR CLOUDS

Period	Obligations	
01/10/1989-09/30/1994	FY93: \$23,452	TOTAL: \$120,580
Prin. Invest.	NASA Tech. Officer	CASE Category
L G MUNDY	ARC/L C HAUGHNEY	11-Astronomy

**NAG 2-627 University of Maryland - College Park 4457**  
 PIONEER 10/11 DATA ANALYSIS AND INTERPRETATION

Period	Obligations	
03/15/1990-12/31/1993	FY93: \$320,000	TOTAL: \$1,265,721
Prin. Invest.	NASA Tech. Officer	CASE Category
F B McDONALD	ARC/L E LASHER	11-Astronomy
	....R O FIMMEL	

**NAG 2-787 University of Maryland - College Park 4458**  
 EVOLUTION AND GRAVITY RECEPTORS IN THE EAR

Period	Obligations	
05/27/1992-04/30/1994	FY93: \$48,500	TOTAL: \$101,499
Prin. Invest.	NASA Tech. Officer	CASE Category
A N POPPER	ARC/M L CORCORAN	51-Biological Sci
	....C E WADE	

**NAG 2-793 University of Maryland - College Park 4459**  
 SIMULATION MODELING FOR ADVANCED ROTORCRAFT FLIGHT CONTROL SYSTEM DESIGN

Period	Obligations	
07/21/1992-05/31/1993	FY93: \$0	TOTAL: \$33,215
Prin. Invest.	NASA Tech. Officer	CASE Category
R CELI	ARC/M B TISCHLER	41-Aero Engr

**NAG 2-794 University of Maryland - College Park 4460**  
 TECHNIQUES FOR DESIGNING ROTORCRAFT SYSTEMS

Period	Obligations	
07/21/1992-03/31/1994	FY93: \$60,000	TOTAL: \$127,000
Prin. Invest.	NASA Tech. Officer	CASE Category
W S LEVINE	ARC/M B TISCHLER	41-Aero Engr
J B BARLOW		

**NASA'S UNIVERSITY PROGRAM**  
**MARYLAND (Continued)**

**NAG 2-856 University of Maryland - College Park 4461**  
 ENERGETICS, STRUCTURE, AND PHYSICAL CONDITIONS OVER  
 LARGE SCALES IN MOLECULAR CLOUDS

Period	Obligations	
08/06/1993-09/30/1994	FY93: \$13,018	TOTAL: \$13,018
Prin. Invest.	NASA Tech. Officer	CASE Category
J E HOWE	ARC/C D LAUGHLIN	11-Astronomy
	....C M GILLESPIE	

**NAG 3-1180 University of Maryland - College Park 4462**  
 A THEOR STUDY OF THE INFL OF THE EARTH'S GRAV AND OF A  
 ZERO GRAV ENVIR ON EXP MEAS OF THE CRIT PROP

Period	Obligations	
06/14/1990-01/16/1994	FY93: \$98,000	TOTAL: \$303,000
Prin. Invest.	NASA Tech. Officer	CASE Category
R A FERRELL	LERC/R A WILKINSON	13-Physics

**NAG 3-1321 University of Maryland - College Park 4463**  
 EXISTENCE, UNIQUENESS, AND ERROR ESTIMATION IN THE F  
 REED-WALKER NUMERICAL METHOD APPL TO MAT MODELING

Period	Obligations	
01/29/1992-01/22/1994	FY93: \$75,000	TOTAL: \$105,000
Prin. Invest.	NASA Tech. Officer	CASE Category
H W HASLACH	LERC/A D FREED	47-Materials Engr

**NAG 3-1395 University of Maryland - College Park 4464**  
 CRITICAL DYNAMICS OF FLUIDS

Period	Obligations	
12/21/1992-12/14/1993	FY93: \$182,000	TOTAL: \$182,000
Prin. Invest.	NASA Tech. Officer	CASE Category
R A FERRELL	LERC/R A WILKINSON	13-Physics

**NAG 3-1488 University of Maryland - College Park 4465**  
 PRIMARY ZONE FUEL-AIR MIXING STUDIES FOR LOW NOX A  
 DVANCED SUBSONIC COMBUSTOR DEVELOPMENT

Period	Obligations	
04/29/1993-02/07/1994	FY93: \$47,547	TOTAL: \$47,547
Prin. Invest.	NASA Tech. Officer	CASE Category
A K GUPTA	LERC/T M SANDERS	41-Aero Engr
H L RUSSELL		

**NAG 5-216 University of Maryland - College Park 4466**  
 THERMODYNAMIC AND SPECTROSCOPIC STUDIES RELEVANT TO  
 A JOVIAN SATELLITE

Period	Obligations	
01/15/1982-01/31/1994	FY93: \$43,100	TOTAL: \$307,776
Prin. Invest.	NASA Tech. Officer	CASE Category
R K KHANNA	GSFC/J C PEARL	11-Astronomy

**NAG 5-252 University of Maryland - College Park 4467**  
 SATELLITE OBSERVATIONS OF DISTANT DUSTY

Period	Obligations	
07/01/1982-02/28/1993	FY93: \$0	TOTAL: \$209,400
Prin. Invest.	NASA Tech. Officer	CASE Category
M F A'HEARN	GSFC/D WEST	11-Astronomy
L A MCFADDEN		
D G SCHLEICHER		

**NAG 5-705 University of Maryland - College Park 4468**  
 RESEARCH RELATIVE TO MP ION AND ELELCTRON EXPERIMENT

Period	Obligations	
10/01/1985-11/30/1993	FY93: \$60,000	TOTAL: \$548,444
Prin. Invest.	NASA Tech. Officer	CASE Category
G GLOECKLER	GSFC/G BULLOCK	11-Astronomy
A B GALVIN		
G M MASON		

**NAG 5-716 University of Maryland - College Park 4469**  
 SCIENTIFIC ANALYSIS OF DATA FROM THE CHARGE ENERGY MASS  
 SPECTROMETER

Period	Obligations	
10/01/1985-03/14/1994	FY93: \$60,000	TOTAL: \$2,332,608
Prin. Invest.	NASA Tech. Officer	CASE Category
S GLOECKNER	GSFC/S CURTIS	13-Physics
D HAMILTON		
F IPAVICH		

**NAG 5-728 University of Maryland - College Park 4470**  
 RESEARCH RELATIVE TO NUCLEAR AND IONIC CHARGE  
 DISTRIBUTYITION EXPERIMENTS-ISEE

Period	Obligations	
02/01/1986-03/31/1993	FY93: \$0	TOTAL: \$930,000
Prin. Invest.	NASA Tech. Officer	CASE Category
F M IPAVICH	GSFC/G BULLOCK	11-Astronomy
F M SPAVICK		
A B GALVIN		

**NAG 5-730 University of Maryland - College Park 4471**  
 SATELLITE TEMPERATURE SOUNDINGS FOR REGIONAL WEATHER  
 PREDECTION MODELS

Period	Obligations	
01/15/1986-01/31/1993	FY93: \$0	TOTAL: \$383,569
Prin. Invest.	NASA Tech. Officer	CASE Category
O E THOMPSON	GSFC/J SUSSKIND	31-Atmos Sci
D A DAZLICH		

**NAG 5-822 University of Maryland - College Park 4472**  
 STUDIES OF THE DYNAMICS OF THE THERMOSPHERE AND SPACE  
 STATION DATA SYSTEMS

Period	Obligations	
07/15/1986-10/31/1991	FY93: \$0	TOTAL: \$588,130
Prin. Invest.	NASA Tech. Officer	CASE Category
N SPENCER	GSFC/W R HOEGY	31-Atmos Sci

**NAG 5-867 University of Maryland - College Park 4473**  
 REMOTE SENSING OF THE ATMOSPHERE, TWO-LEVEL  
 ANALYSIS--THE AFRICAN DROUGHT

Period	Obligations	
01/01/1987-01/31/1993	FY93: \$0	TOTAL: \$884,198
Prin. Invest.	NASA Tech. Officer	CASE Category
F E BAER	GSFC/J R BATES	31-Atmos Sci
Y MINTZ		

**NAG 5-892 University of Maryland - College Park 4474**  
 MODELING OF VEGETATION-ATMOSPHERE INTERACTIONS FOR  
 FIFE

Period	Obligations	
04/15/1987-01/31/1993	FY93: \$0	TOTAL: \$483,334
Prin. Invest.	NASA Tech. Officer	CASE Category
P J SELLERS	GSFC/D L TOLL	39-Env Sci, NEC
K T PAW	....F HALL	

**NASA'S UNIVERSITY PROGRAM**  
**MARYLAND (Continued)**

**NAG 5-914 University of Maryland - College Park 4475**  
 MESOSCALE SURFACE RADIATION BUDGETS FROM SATELLITE  
 OBSERVATIONNS: DERIVATIOONN AND VALIDATION

Period	Obligations	
07/01/1987-12/31/1993	FY93: \$125,000	TOTAL: \$626,663
Prin. Invest.	NASA Tech. Officer	CASE Category
R T PINKER	GSFC/M D CHOU	31-Atmos Sci

**NAG 5-942 University of Maryland - College Park 4476**  
 MONITORING THE GRASSLANDS OF SUB-SAHARAN AFRICA

Period	Obligations	
07/01/1987-10/31/1993	FY93: \$63,000	TOTAL: \$891,327
Prin. Invest.	NASA Tech. Officer	CASE Category
C O JUSTICE	GSFC/C J TUCKER	39-Env Sci, NEC
S N GOWARD	..../B N HOLBEN	

**NAG 5-1101 University of Maryland - College Park 4477**  
 COMPREHENSIVE THEORETICAL AND COMPUTATIONAL MODELING  
 PROGRAM

Period	Obligations	
12/01/1988-04/30/1994	FY93: \$557,000	TOTAL: \$2,320,200
Prin. Invest.	NASA Tech. Officer	CASE Category
K PAPADOPOULOS	GSFC/S A CURTIS	13-Physics
	..../M H ACUNA	

**NAG 5-1129 University of Maryland - College Park 4478**  
 CLUSTER AND CORONAL MASS EJECTIONS

Period	Obligations	
04/15/1989-01/14/1993	FY93: \$23,268	TOTAL: \$285,794
Prin. Invest.	NASA Tech. Officer	CASE Category
M A COPLAN	GSFC/K W OGILVIE	13-Physics

**NAG 5-1134 University of Maryland - College Park 4479**  
 SPACE SCIENCES RESEARCH

Period	Obligations	
07/01/1989-01/31/1994	FY93: \$232,000	TOTAL: \$866,227
Prin. Invest.	NASA Tech. Officer	CASE Category
J D TRASCO	GSFC/T KOSTIUK	11-Astronomy
R A BELL		

**NAG 5-1149 University of Maryland - College Park 4480**  
 RESEARCH RELATIVE TO THE DESIGN OF AN AURORAL AND  
 TRAPPED

Period	Obligations	
06/15/1989-08/31/1992	FY93: \$0	TOTAL: \$104,000
Prin. Invest.	NASA Tech. Officer	CASE Category
M A COPLAN	GSFC/R A HOFFMAN	13-Physics
J H MOORE		

**NAG 5-1176 University of Maryland - College Park 4481**  
 COOPERATIVE RESEARCH IN SATELLITE-BASED STUDIES

Period	Obligations	
07/01/1989-07/31/1993	FY93: \$0	TOTAL: \$2,848,308
Prin. Invest.	NASA Tech. Officer	CASE Category
J D TRASCO	GSFC/F C JONES	11-Astronomy
R A BELL		

**NAG 5-1272 University of Maryland - College Park 4482**  
 ANALYSIS OF IUE SPECTRA OF COMETS

Period	Obligations	
08/15/1989-12/31/1994	FY93: \$59,000	TOTAL: \$127,000
Prin. Invest.	NASA Tech. Officer	CASE Category
M A A'HEARN	GSFC/D WEST	11-Astronomy

**NAG 5-1299 University of Maryland - College Park 4483**  
 PIONEER 10/11 AND VOYAGER 12 DATA ANALYSIS AND  
 INTERPRETATION

Period	Obligations	
09/15/1989-05/14/1993	FY93: \$0	TOTAL: \$311,275
Prin. Invest.	NASA Tech. Officer	CASE Category
F MCDONALD	GSFC/N LAI	11-Astronomy

**NAG 5-1301 University of Maryland - College Park 4484**  
 OBSERVATIONS OF STELLAR CORONAL PLASMA AND FLARES  
 CONJUNCTION

Period	Obligations	
09/15/1989-07/14/1992	FY93: \$0	TOTAL: \$40,000
Prin. Invest.	NASA Tech. Officer	CASE Category
M R KUNDU	GSFC/S P MARAN	11-Astronomy
S M WHITE	..../K G CARPENTER	

**NAG 5-1356 University of Maryland - College Park 4485**  
 THEORETICAL STUDY OF 3-DIMENSIONAL RECONNECTIONS

Period	Obligations	
04/10/1990-05/31/1994	FY93: \$22,000	TOTAL: \$116,750
Prin. Invest.	NASA Tech. Officer	CASE Category
J M FINN	GSFC/D S SPICER	13-Physics
	..../M L GOLDSTEIN	

**NAG 5-1427 University of Maryland - College Park 4486**  
 FUNDAMENTAL PROCESSES IN INTRACAVITY DYE LASER

Period	Obligations	
08/14/1990-12/31/1992	FY93: \$9,664	TOTAL: \$58,728
Prin. Invest.	NASA Tech. Officer	CASE Category
C C DAVIS	GSFC/J E ALLEN	13-Physics

**NAG 5-1450 University of Maryland - College Park 4487**  
 MILLIMETER IMAGING OF ENERGETIC ELECTRONS

Period	Obligations	
08/23/1990-12/31/1993	FY93: \$30,000	TOTAL: \$130,000
Prin. Invest.	NASA Tech. Officer	CASE Category
M R KUNDU	GSFC/J P NORRIS	11-Astronomy
S M WHITE	..../D A KNIFFEN	

**NAG 5-1471 University of Maryland - College Park 4488**  
 COARSE RESOLUTION REMOTE SENSING OF THE SAHELIAN  
 ENVIRONMENT

Period	Obligations	
10/01/1990-02/14/1994	FY93: \$225,500	TOTAL: \$543,115
Prin. Invest.	NASA Tech. Officer	CASE Category
S D PRINCE	GSFC/B N HOLBEN	39-Env Sci, NEC

**NAG 5-1532 University of Maryland - College Park 4489**  
 X-RAY MAPPING OF THE NEARBY SEYFERT GALAXY NGR 106 8  
 WITH ROSAT

Period	Obligations	
04/24/1991-04/30/1993	FY93: \$0	TOTAL: \$32,000
Prin. Invest.	NASA Tech. Officer	CASE Category
A S WILSON	GSFC/R PETRE	11-Astronomy

**NASA'S UNIVERSITY PROGRAM**  
**MARYLAND (Continued)**

**NAG 5-1558 University of Maryland - College Park 4490**  
 GLOBAL ELECTIVE FIELD DETERMINATION IN THE EARTH'S OUTER  
 MAGNETOSPHERE USING CHARGES PARTICLES  

Period	Obligations	
04/17/1991-05/14/1993	FY93: \$0	TOTAL: \$123,000
Prin. Invest.	NASA Tech. Officer	CASE Category
T EASTMAN	GSFC/G D BULLOCK	19-Phys Sci, NEC

**NAG 5-1804 University of Maryland - College Park 4497**  
 MODELING LARGE-SCALE CHANGES IN SEA SURFACE TOPOGR  
 APHY  

Period	Obligations	
09/24/1991-09/30/1992	FY93: \$4,304	TOTAL: \$17,696
Prin. Invest.	NASA Tech. Officer	CASE Category
L HALPERN	GSFC/H J ZWALLY	33-Oceanography
J A CARTON	....D E SMITH	

**NAG 5-1571 University of Maryland - College Park 4491**  
 EVALUATION OF THE TOPOGRAPHIC MAPPING LASER ALTIME TER:  
 EFFECTS OF CLOUDS ON DATA ACQUISITION  

Period	Obligations	
05/02/1991-11/14/1991	FY93: \$877	TOTAL: \$33,917
Prin. Invest.	NASA Tech. Officer	CASE Category
D J HARDING	GSFC/J L BUFTON	32-Geological Sci
	....J B GARVIN	

**NAG 5-1825 University of Maryland - College Park 4498**  
 DEVELOP., OF VISUAL PROG., TECHNIQUES TO INTEGRATE  
 THEORETICAL MODELING INTO THE SCIENTIFIC PLAN. .  

Period	Obligations	
11/13/1991-01/14/1993	FY93: \$6,456	TOTAL: \$52,456
Prin. Invest.	NASA Tech. Officer	CASE Category
C C GOODRICH	GSFC/M H ACUNA	13-Physics

**NAG 5-1694 University of Maryland - College Park 4492**  
 COOPERATIVE RESEARCH IN THE STUDY OF TERRESTRIAL  
 PLANETS  

Period	Obligations	
07/01/1991-11/14/1993	FY93: \$208,780	TOTAL: \$669,054
Prin. Invest.	NASA Tech. Officer	CASE Category
R A BELL	GSFC/J R HEIRTZLER	11-Astronomy
J D TRASCO		

**NAG 5-1834 University of Maryland - College Park 4499**  
 CARBON STORAGE IN SOILS ALONG TRANSGRESSIVE COASTL  
 INES  

Period	Obligations	
11/26/1991-05/31/1993	FY93: \$0	TOTAL: \$67,500
Prin. Invest.	NASA Tech. Officer	CASE Category
M C RABENHORST	GSFC/L S WALTER	32-Geological Sci
S N COWARD		
M S KEARNEY		

**NAG 5-1695 University of Maryland - College Park 4493**  
 COOPERATIVE RESEARCH IN SPACE GEODESY AND CRUSTAL  
 DYNAMICS  

Period	Obligations	
07/01/1991-11/14/1993	FY93: \$217,756	TOTAL: \$863,183
Prin. Invest.	NASA Tech. Officer	CASE Category
R A BELL	GSFC/B PUTNEY	11-Astronomy
J D TRASCO		

**NAG 5-1835 University of Maryland - College Park 4500**  
 CLIMATE MODEL CALCULATIONS OF THE EFFECTS OF VOLCA NOES  
 ON GLOBAL CLIMATE  

Period	Obligations	
11/27/1991-12/31/1993	FY93: \$36,000	TOTAL: \$181,000
Prin. Invest.	NASA Tech. Officer	CASE Category
A ROBUCK	GSFC/L S WALTER	31-Atmos Sci
K E TAYLOR		

**NAG 5-1696 University of Maryland - College Park 4494**  
 PARTICIPATION IN TOMS MISSION  

Period	Obligations	
07/15/1991-12/14/1993	FY93: \$115,923	TOTAL: \$259,944
Prin. Invest.	NASA Tech. Officer	CASE Category
R D HUDSON	GSFC/J R HERMAN	31-Atmos Sci
	..../R D MCPETERS	

**NAG 5-1886 University of Maryland - College Park 4501**  
 TESTING THE TORUS PLUS REFLECTION MODEL OF SEYFERT 2  
 GALAXIES  

Period	Obligations	
02/10/1992-02/14/1994	FY93: \$0	TOTAL: \$30,000
Prin. Invest.	NASA Tech. Officer	CASE Category
A S WILSON	GSFC/R PETRE	11-Astronomy

**NAG 5-1736 University of Maryland - College Park 4495**  
 EVOLUTION OF THE DUST AND GAS CONTENT OF GIANT  
 MOLECULAR CLOUDS  

Period	Obligations	
08/15/1991-08/14/1993	FY93: \$0	TOTAL: \$55,000
Prin. Invest.	NASA Tech. Officer	CASE Category
L BLITZ	GSFC/D WEST	11-Astronomy

**NAG 5-1890 University of Maryland - College Park 4502**  
 A STUDY OF KINETICS OF MAGNETIZATION IN HIGH TC SU  
 PERCONDUCTORS  

Period	Obligations	
01/30/1992-02/14/1993	FY93: \$0	TOTAL: \$10,875
Prin. Invest.	NASA Tech. Officer	CASE Category
M TURCHINSKAYA	GSFC/Y FLOM	13-Physics

**NAG 5-1782 University of Maryland - College Park 4496**  
 ATMOSPHERE LIDAR: METEOROLOGICAL OBSERVATIONS AND NEW  
 INSTRUMENT CONCEPTS  

Period	Obligations	
09/10/1991-06/30/1994	FY93: \$3,275	TOTAL: \$78,275
Prin. Invest.	NASA Tech. Officer	CASE Category
T D WILKERSON	GSFC/G K SCHWEMMER	31-Atmos Sci

**NAG 5-1933 University of Maryland - College Park 4503**  
 FLOW VISUALIZATION OF A CAPILLARY PUMPED LOOP EVAP  
 ORATOR  

Period	Obligations	
03/12/1992-09/14/1993	FY93: \$0	TOTAL: \$15,000
Prin. Invest.	NASA Tech. Officer	CASE Category
K E HEROLD	GSFC/T D SWANSON	41-Aero Engr
	..../J KU	

**NASA'S UNIVERSITY PROGRAM**  
**MARYLAND (Continued)**

**NAG 5-1966 University of Maryland - College Park 4504**  
 PHOTOFRAGMENT SPECTROSCOPY OF HIGHLY CHARGED MOLECULAR IONS

Period	Obligations	
04/03/1992-04/30/1994	FY93: \$32,179	TOTAL: \$55,676
Prin. Invest.	NASA Tech. Officer	CASE Category
J WEINER	GSFC/J W KELLER	12-Chemistry

**NAG 5-2029 University of Maryland - College Park 4511**  
 A PROPOSAL TO DEVELOP A MATHEMATICAL MODEL AND CONTROL STRATEGIES FOR HTE NASA ROTARY ...

Period	Obligations	
07/15/1992-07/14/1993	FY93: \$0	TOTAL: \$18,000
Prin. Invest.	NASA Tech. Officer	CASE Category
J LONCARIC	GSFC/J M VRANISH	45-Elec Engr

**NAG 5-1971 University of Maryland - College Park 4505**  
 MEASURING VOLCANIC SULFUR DIOXIDE EMISSION FROM SATELLITES

Period	Obligations	
04/20/1992-10/14/1993	FY93: \$29,400	TOTAL: \$134,650
Prin. Invest.	NASA Tech. Officer	CASE Category
C C SCHNETZLER	GSFC/A J KRUEGER	39-Env Sci, NEC
	....D L WILLIAMS	

**NAG 5-2069 University of Maryland - College Park 4512**  
 SURFACE PASSIVATION OF HGCDE IR DETECTORS

Period	Obligations	
08/25/1992-02/28/1993	FY93: \$0	TOTAL: \$12,500
Prin. Invest.	NASA Tech. Officer	CASE Category
A A ILIADIS	GSFC/D B MOTT	45-Elec Engr
	....R J MARTINEAU	

**NAG 5-1979 University of Maryland - College Park 4506**  
 HIGH TC SUPERCONDUCTING BOLOMETERS ON SILICON SUBSTRATES

Period	Obligations	
05/04/1992-05/14/1994	FY93: \$22,000	TOTAL: \$47,000
Prin. Invest.	NASA Tech. Officer	CASE Category
T VENKATESAN	GSFC/J C BRASUNAS	13-Physics
S BHATTACHARYA		

**NAG 5-2093 University of Maryland - College Park 4513**  
 LONG TERM OBSERVATIONS OF COMETS AND RELATED BODIES

Period	Obligations	
09/15/1992-01/31/1994	FY93: \$17,490	TOTAL: \$17,490
Prin. Invest.	NASA Tech. Officer	CASE Category
M F A'HEARN	GSFC/D WEST	11-Astronomy

**NAG 5-2001 University of Maryland - College Park 4507**  
 SOLAR FLARE PHYSICS

Period	Obligations	
07/01/1992-06/30/1994	FY93: \$126,091	TOTAL: \$224,256
Prin. Invest.	NASA Tech. Officer	CASE Category
M R KUNDU	GSFC/C J CRANNELL	11-Astronomy
E J SCHMAHL		
M J ASCHWANDER		

**NAG 5-2107 University of Maryland - College Park 4514**  
 A STUDY OF THE DEVELOPMENT OF GEOPHYSICAL DATA SET FROM REMOTE SENSING DATA

Period	Obligations	
10/13/1992-10/14/1993	FY93: \$173,250	TOTAL: \$173,250
Prin. Invest.	NASA Tech. Officer	CASE Category
A J FLEIG	GSFC/S SAMADI	22-Computer Science
J R TOWNSHEND	....L M STUART	

**NAG 5-2004 University of Maryland - College Park 4508**  
 FLEX-GEAR ELECTRICAL/MECHANICAL POWER TRANSMISSION

Period	Obligations	
07/15/1992-09/30/1993	FY93: \$1,000	TOTAL: \$21,000
Prin. Invest.	NASA Tech. Officer	CASE Category
L W TSAI	GSFC/J M VRANISH	46-Mech Engr

**NAG 5-2117 University of Maryland - College Park 4515**  
 BIOPHYSICAL MODELS AND SATELLITE DATA: FURTHER ANALYSIS OF THE FIVE RESULTS AT THE UNIV OF MARYLAND

Period	Obligations	
10/09/1992-10/14/1993	FY93: \$100,540	TOTAL: \$100,540
Prin. Invest.	NASA Tech. Officer	CASE Category
R D HUDSON	GSFC/F HALL	39-Env Sci, NEC
	....P SELLERS	

**NAG 5-2005 University of Maryland - College Park 4509**  
 PILOT LAND DATA SYSTEM LINKAGES FOR HYDROLOGIC RESEARCH

Period	Obligations	
07/01/1992-01/31/1993	FY93: \$0	TOTAL: \$9,840
Prin. Invest.	NASA Tech. Officer	CASE Category
J K SIRCAR	GSFC/E T ENGMAN	39-Env Sci, NEC

**NAG 5-2202 University of Maryland - College Park 4516**  
 DEVELOPMENT AND APPLICATION OF THREE-DIMENSIONAL RADIATION MAGNETOHYDRODYNAMIC CODE FOR MASSIVELY..

Period	Obligations	
02/23/1993-11/30/1993	FY93: \$28,500	TOTAL: \$28,500
Prin. Invest.	NASA Tech. Officer	CASE Category
J M STONE	GSFC/J R FISCHER	22-Computer Science
J F HAWLEY		

**NAG 5-2011 University of Maryland - College Park 4510**  
 CORONAL X-RAY EMISSION FROM SINGLE, MAGNETIC WHITE DWARFS

Period	Obligations	
07/15/1992-07/14/1994	FY93: \$0	TOTAL: \$17,000
Prin. Invest.	NASA Tech. Officer	CASE Category
V L TRIMBLE	GSFC/R PETRE	11-Astronomy

**NAG 5-2293 University of Maryland - College Park 4517**  
 BIOSPHERIC DYNAMICS IN THE BOREAL FOREST ECOTONE

Period	Obligations	
06/17/1993-06/30/1994	FY93: \$30,000	TOTAL: \$30,000
Prin. Invest.	NASA Tech. Officer	CASE Category
S N GOWARD	GSFC/F G HALL	39-Env Sci, NEC
	....P SELLERS	

**NASA'S UNIVERSITY PROGRAM**  
**MARYLAND (Continued)**

**NAG 5-2296 University of Maryland - College Park 4518**  
 TRANSIENT 511 KEV EMISSION FROM 1E1740.7-2942 AND SOURCES  
 NEAR THE GALACTIC CENTER  
*Period* *Obligations*  
 06/17/1993-02/28/1995 FY93: \$30,000 TOTAL: \$30,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 M LEVENTHAL GSFC/J TUELLER 11-Astronomy

**NAG 5-2308 University of Maryland - College Park 4519**  
 BIOPHYSICAL SIGNIFICANCE OF SPECTRAL VEGETATION IN DICES  
 IN THE BOREAL FOREST  
*Period* *Obligations*  
 07/14/1993-07/14/1994 FY93: \$45,000 TOTAL: \$45,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 C L WALTHALL GSFC/F G HALL 39-Env Sci, NEC  
 ....P SELLERS

**NAG 5-2339 University of Maryland - College Park 4520**  
 CO2 WATER FLUXES IN THE BOREAL FOREST OVERSTORY  
*Period* *Obligations*  
 07/27/1993-07/31/1994 FY93: \$6,500 TOTAL: \$6,500  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 J SULLIVAN GSFC/E MIDDLETON 39-Env Sci, NEC

**NAG 5-2340 University of Maryland - College Park 4521**  
 DEVELOPMENT OF SURFACE PASSIVATION FOR HG CD TE IR  
 DETECTORS  
*Period* *Obligations*  
 07/27/1993-07/31/1994 FY93: \$15,156 TOTAL: \$15,156  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 A A ILIADIS GSFC/B MOTT 45-Elec Engr  
 ....R MARTINEAU

**NAG 5-2352 University of Maryland - College Park 4522**  
 ELECTRON BEAMS IN SOLAR FLARES  
*Period* *Obligations*  
 08/12/1993-08/14/1994 FY93: \$25,250 TOTAL: \$25,250  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 M J ASCHWANDEN GSFC/J NORRIS 11-Astronomy  
 ....N WHITE

**NAG 5-2359 University of Maryland - College Park 4523**  
 HIGH-SPEED MODULATION OF DIFFRACTION-LIMITED HIGH- POWER  
 SEMICONDUCTOR LASER AMPLIFIER  
*Period* *Obligations*  
 09/09/1993-09/14/1994 FY93: \$44,000 TOTAL: \$44,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 M DAGENAIS GSFC/D M CORNWALL 45-Elec Engr  
 ....M A KRAINAK

**NAG 5-2361 University of Maryland - College Park 4524**  
 OBSERVATIONS OF OCEAN HEAT TRANSPORT  
*Period* *Obligations*  
 08/31/1993-09/14/1994 FY93: \$13,845 TOTAL: \$13,845  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 J A CARTON GSFC/M M RIENECKER 33-Oceanography

**NAG 5-2364 University of Maryland - College Park 4525**  
 A SEARCH FOR ROTATIONAL MODULATION OF THE CORONAL/  
 TRANSITION REGION RADIATION FROM AB  
*Period* *Obligations*  
 09/09/1993-09/14/1994 FY93: \$35,000 TOTAL: \$35,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 S M WHITE HQ/R OLIVERSEN 11-Astronomy

**NAG 9-548 University of Maryland - College Park 4526**  
 RE-OS ISOTOPIC INVESTIGATION OF METEORITES  
*Period* *Obligations*  
 09/10/1991-05/01/1993 FY93: \$0 TOTAL: \$95,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 R J WALKER JSC/I D BROWNE 19-Phys Sci, NEC

**NAGW 101 University of Maryland - College Park 4527**  
 THERMAL AND SUPRA-THERMAL ION COMPOSITION STUDIES  
 CLOSE TO THE SUN  
*Period* *Obligations*  
 10/01/1980-09/30/1991 FY93: \$1 TOTAL: \$1,085,094  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 G GLOECKLER HQ/J D BOHLIN 13-Physics  
 ....S KANE

**NAGW 558 University of Maryland - College Park 4528**  
 U.S.-INDIA COOPERATIVE RESEARCH ON MONSOON VARIABILITY  
*Period* *Obligations*  
 12/19/1983-09/30/1992 FY93: \$0 TOTAL: \$1,069,435  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 J SHUKLA HQ/R K KAKAR 31-Atmos Sci  
 ....J S THEON

**NAGW 902 University of Maryland - College Park 4529**  
 THEORETICAL SPECTROSCOPY OF COMETS  
*Period* *Obligations*  
 06/01/1986-12/31/1993 FY93: \$100,000 TOTAL: \$498,455  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 M F A'HEARN HQ/H C BRINTON 11-Astronomy  
 ....J H RAHE

**NAGW 1152 University of Maryland - College Park 4530**  
 TOWARD NEW THEORIES IN MACROSEAL BIOCLIMATOLOGY  
*Period* *Obligations*  
 08/01/1987-01/31/1994 FY93: \$142,963 TOTAL: \$734,805  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 S N GOWARD HQ/D E WICKLAND 39-Env Sci, NEC  
 ....T J PIEPER

**NAGW 1166 University of Maryland - College Park 4531**  
 INTEGRATION OF SPACE AND IN SITU OBSERVATIONS  
*Period* *Obligations*  
 05/10/1988-08/31/1992 FY93: \$0 TOTAL: \$672,656  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 J SHUKLA HQ/R K KAKAR 31-Atmos Sci  
 J L KINTER ....J S THEON

**NAGW 1269 University of Maryland - College Park 4532**  
 ATMOSPHERE-BIOSPHERE SYSTEM STUDIES USING MODELS  
*Period* *Obligations*  
 04/26/1988-12/31/1993 FY93: \$100,000 TOTAL: \$789,556  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 P SELLERS HQ/G ASRAR 39-Env Sci, NEC  
 J SHUKLA ....T J PIEPER

**NASA'S UNIVERSITY PROGRAM**  
**MARYLAND (Continued)**

**NAGW 1346 University of Maryland - College Park 4533**  
 3 DIMENSIONAL CONSIDERATIONS OF SOLAR LOOP EQUILIBRIA  
*Period Obligations*  
 07/06/1988-05/31/1994 FY93: \$60,000 TOTAL: \$385,788  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J M FINN HQ/J D BOHLIN 13-Physics  
 A B HASAM ....S KANE

**NAGW 1471 University of Maryland - College Park 4534**  
 DEV AND APPLICATION OF REMOTE SENSING OF LONGWAVE HEATING  
*Period Obligations*  
 10/07/1988-01/31/1993 FY93: \$0 TOTAL: \$576,956  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R G ELLINGSON HQ/W HUNTRESS JR 31-Atmos Sci  
 ....S G TILFORD

**NAGW 1541 University of Maryland - College Park 4535**  
 RESEARCH IN SOLAR ASTRONOMY AT SHORT WAVELENGTHS  
*Period Obligations*  
 12/06/1988-10/31/1993 FY93: \$72,000 TOTAL: \$410,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M R KUNDU HQ/J D BOHLIN 13-Physics  
 ....S KANE

**NAGW 1614 University of Maryland - College Park 4536**  
 CRYOGENIC MONOCRYSTALLINE OPTICAL CAVITY  
*Period Obligations*  
 01/05/1989-02/29/1992 FY93: \$50 TOTAL: \$365,713  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J P RICHARD HQ/J K ALEXANDER 45-Elec Engr  
 ....D A HOLLAND

**NAGW 1661 University of Maryland - College Park 4537**  
 STUDY OF PLASMA INSTABILITIES IN THE MAGNETOSPHERE  
*Period Obligations*  
 03/02/1989-01/31/1994 FY93: \$33,000 TOTAL: \$302,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J F DRAKE HQ/M MELLOTT 31-Atmos Sci

**NAGW 1813 University of Maryland - College Park 4538**  
 INFRARED AURORAL PROCESSES IN JUPITER  
*Period Obligations*  
 07/10/1989-06/30/1994 FY93: \$60,000 TOTAL: \$213,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M J A'HEARN HQ/J T BERGSTRALH 32-Geological Sci

**NAGW 1848 University of Maryland - College Park 4539**  
 OBSERVATIONS OF THE MAGNETOPAUSE CURRENT LAYER  
*Period Obligations*  
 09/22/1989-02/28/1993 FY93: \$0 TOTAL: \$150,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 T E EASTMAN HQ/M M MELLOTT 13-Physics  
 ....T W PERRY

**NAGW 1856 University of Maryland - College Park 4540**  
 A PROGRAM OF RESEARCH OF EXPERIMENTAL TECHNIQUES  
*Period Obligations*  
 10/23/1989-12/31/1991 FY93: \$1 TOTAL: \$49,999  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D C HAMILTON HQ/P R MAHAFFY 31-Atmos Sci

**NAGW 1886 University of Maryland - College Park 4541**  
 OBSERVATIONS OF COMETS AND ASTEROIDS  
*Period Obligations*  
 04/10/1990-11/30/1993 FY93: \$175,000 TOTAL: \$567,540  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M F AHEARN HQ/J H RAHE 11-Astronomy

**NAGW 1895 University of Maryland - College Park 4542**  
 CHEMICAL STUDIES ON THE ORIGIN OF LIFE  
*Period Obligations*  
 11/30/1989-09/30/1993 FY93: \$50,000 TOTAL: \$463,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 C PONNAMPERUMA HQ/J D RUMMEL 12-Chemistry

**NAGW 1967 University of Maryland - College Park 4543**  
 NAGW-1967/UNIV OF MD/PRIMARY PRODUCTION MODELLING IN THE SAHEL USING NOAA AVHRR DATA  
*Period Obligations*  
 02/16/1990-12/31/1993 FY93: \$100,000 TOTAL: \$385,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S D PRINCE HQ/G ASRAR 39-Env Sci, NEC  
 ....T J PIEPER

**NAGW 1990 University of Maryland - College Park 4544**  
 RESEARCH ON TECHNIQUES FOR MEASUREMENTS OF THE COM POSITION OF SOLAR ENERGETIC PARTICLES  
*Period Obligations*  
 04/30/1990-10/31/1993 FY93: \$70,000 TOTAL: \$445,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 G M MASON HQ/W V JONES 13-Physics  
 ....J C LING

**NAGW 2062 University of Maryland - College Park 4545**  
 NAGW-2062/UNIV OF MARYLAND @ COLLEGE PARK/RESEARCH IN CHARGED PARTICLE TRANSPORT THEORY  
*Period Obligations*  
 05/05/1990-03/31/1994 FY93: \$30,000 TOTAL: \$120,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J A EARL HQ/W V JONES 13-Physics  
 ....J C LING

**NAGW 2079 University of Maryland - College Park 4546**  
 AN INVESTIGATION OF MAGNETIC RECONNECTION AND ASSOCIATED OBSERVATIONAL SIGNATURES IN COLL. PLASMA  
*Period Obligations*  
 05/05/1990-05/31/1993 FY93: \$0 TOTAL: \$172,500  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J F DRAKE HQ/M M MELLOTT 13-Physics  
 ....T PERRY

**NAGW 2168 University of Maryland - College Park 4547**  
 NAGW-2168/UNIV OF MD @ COLLEGE PARK/INVESTIGATION OF AURORAL SPECTRAL PROCESSES TO OPTIMIZE AURORAL  
*Period Obligations*  
 07/20/1990-05/31/1992 FY93: \$0 TOTAL: \$102,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 W BENESCH HQ/M M MELLOTT 13-Physics  
 ....T PERRY

**NASA'S UNIVERSITY PROGRAM**  
**MARYLAND (Continued)**

**NAGW 2172 University of Maryland - College Park 4548**  
 NAGW-2172/UNIV OF MD @ COLLEGE PARK/MILLIMETER WAV E  
 IMAGING AND PATROL OBSERVATIONS OF THE SUN  

Period	Obligations	
07/23/1990-06/30/1992	FY93: \$0	TOTAL: \$234,500
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
M R KUNDU	HQ/J D BOHLIN	13-Physics
	....S KANE	

**NAGW 2202 University of Maryland - College Park 4549**  
 HUMAN RESOURCES NEEDS FOR OCEANIC REMOTE SENSING: A  
 PROPOSAL TO TRAIN FUTURE SCIENTISTS  

Period	Obligations	
07/26/1990-03/31/1994	FY93: \$49,600	TOTAL: \$209,132
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
C F D'ELIA	HQ/M LEWIS	33-Oceanography

**NAGW 2245 University of Maryland - College Park 4550**  
 TELEROBOTICS SPACE OPERATIONS RESEARCH  

Period	Obligations	
10/01/1990-01/31/1994	FY93: \$1,200,286	TOTAL: \$4,231,777
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
D AKIN	HQ/L HOLCOMB	42-Astro Engr
	....D LAVERY	

**NAGW 2346 University of Maryland - College Park 4551**  
 INFRARED INVESTIGATIONS OF SOLAR SYSTEM ICES: TEMP  
 ERATURE DEPENDENCE OF OPTICAL CONSTANTS  

Period	Obligations	
03/06/1991-10/31/1993	FY93: \$53,144	TOTAL: \$165,630
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
R J KHANNA	HQ/J T BERGSTRALH	11-Astronomy

**NAGW 2401 University of Maryland - College Park 4552**  
 AEROTHERMODYNAMIC STUDIES OF TEKTITES  

Period	Obligations	
05/21/1991-08/24/1992	FY93: \$0	TOTAL: \$10,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
W L MEINIK	HQ/T A MAXWELL	32-Geological Sci

**NAGW 2504 University of Maryland - College Park 4553**  
 STUDY OF ENERGETIC PARTICLE PROCESSES IN THE HELIO  
 SPHERE  

Period	Obligations	
07/15/1991-04/30/1994	FY93: \$80,000	TOTAL: \$220,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
F B McDONALD	HQ/W V JONES	13-Physics
	....J C LING	

**NAGW 2661 University of Maryland - College Park 4554**  
 CLIMATE MODELING AND SIMULATION STUDIES  

Period	Obligations	
08/12/1991-07/31/1993	FY93: \$0	TOTAL: \$371,736
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
J SHUKLA	HQ/K BERGMAN	99-Multi-Discip
	....R A SCHIFFER	

**NAGW 2664 University of Maryland - College Park 4555**  
 NAGW-2664/UNIV MD/PHYSICAL PROCESSES AND SCALE INT  
 ERACTIONS IN HIGH RESOLUTION CLIMATE SIMULATIONS  

Period	Obligations	
09/17/1991-06/14/1993	FY93: \$0	TOTAL: \$120,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
D STRAUS	HQ/K H BERGMAN	31-Atmos Sci
	....R A SCHIFFER	

**NAGW 2689 University of Maryland - College Park 4556**  
 THE UNITY OF ACTIVITY IN GALAXIES  

Period	Obligations	
01/26/1993-04/30/1993	FY93: \$0	TOTAL: \$112,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
A S WILSON	HQ/G S KUTTER	11-Astronomy
	....G R RIEGLER	

**NAGW 2696 University of Maryland - College Park 4557**  
 DIRECT MEASUREMENTS OF TROPOSPHERIC FROM OZONE TOM  
 S DATA  

Period	Obligations	
09/06/1991-01/31/1994	FY93: \$86,922	TOTAL: \$203,981
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
R D HUDSON	HQ/J A KAYE	11-Astronomy
	....R E MURPHY	

**NAGW 2723 University of Maryland - College Park 4558**  
 GLOBAL MAPPING OF VEGETATIVE LAND COVER  

Period	Obligations	
09/10/1991-08/14/1994	FY93: \$154,047	TOTAL: \$354,047
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
J R TOWNSHEND	HQ/R H WARING	39-Env Sci, NEC
	....R E MURPHY	

**NAGW 2745 University of Maryland - College Park 4559**  
 SIMULATION OF THE CLIMATE CHANGES IN THE CASPIAN S  
 EA-ARAL SEA REGION  

Period	Obligations	
09/20/1991-09/30/1992	FY93: \$0	TOTAL: \$50,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
J SHUKLA	HQ/R A SCHIFFER	31-Atmos Sci
	....D M BUTLER	

**NAGW 2760 University of Maryland - College Park 4560**  
 RADIO STUDIES OF CORONAL MASS EJECTIONS  

Period	Obligations	
11/01/1991-10/31/1993	FY93: \$0	TOTAL: \$40,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
N GOPALSWAMY	HQ/W J WAGNER	13-Physics
	....K LANG	

**NAGW 2777 University of Maryland - College Park 4561**  
 A PROPOSAL FOR ESTABLISHMENT OF A NATIONAL AERONAU  
 TICS AND SPACE ADMINISTRATION CENTER  

Period	Obligations	
12/09/1991-10/31/1993	FY93: \$1,000,000	TOTAL: \$2,000,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
J BARAS	HQ/V CEVENINI	99-Multi-Discip
A EPHREIMIDES	....C PITTMAN	



**NASA'S UNIVERSITY PROGRAM**  
**MARYLAND (Continued)**

**NAGW 2805 University of Maryland - College Park 4562**  
 EMERGENCE OF SELF-REPRODUCING STRUCTURES IN CELLULAR AUTOMATION  

Period	Obligations	
01/17/1992-01/14/1994	FY93: \$144,741	TOTAL: \$292,368
Prin. Invest.	NASA Tech. Officer	CASE Category
J A REGGIA	HQ/J K ALEXANDER	51-Biological Sci
	....D A HOLLAND	

**NAGW 3178 University of Maryland - College Park 4569**  
 NAGW-3178/UNIV MARYLAND/A SEMINAR IN COMPARATIVE PLANETOLOGY  

Period	Obligations	
01/26/1993-06/30/1993	FY93: \$0	TOTAL: \$23,300
Prin. Invest.	NASA Tech. Officer	CASE Category
M A'HEARN	HQ/H C BRINTON	11-Astronomy

**NAGW 2889 University of Maryland - College Park 4563**  
 AQUEOUS GEOCHEMISTRY AND SEDIMENTARY PROCESSES ON EARLY MARS  

Period	Obligations	
02/13/1992-02/28/1993	FY93: \$0	TOTAL: \$26,318
Prin. Invest.	NASA Tech. Officer	CASE Category
M A'HEARN	HQ/J M BOYCE	19-Phys Sci, NEC

**NAGW 3193 University of Maryland - College Park 4570**  
 NAGW-3193/UNIV MARYLAND @ COLLEGE PARK/ABSORBED PH OTOSYNTHETICALLY ACTIVE RADIATION AND SURFACE HEMIS  

Period	Obligations	
09/24/1992-04/30/1994	FY93: \$100,781	TOTAL: \$100,781
Prin. Invest.	NASA Tech. Officer	CASE Category
C L WALTHALL	HQ/D E WICKLAND	39-Env Sci, NEC
J R IRONS	....R E MURPHY	
R HALTHORE		

**NAGW 2928 University of Maryland - College Park 4564**  
 AN ANALYSIS OF TOPOGRAPHIC EFFECTS AND SCALING PROPERTIES  

Period	Obligations	
12/14/1992-12/31/1993	FY93: \$95,000	TOTAL: \$185,000
Prin. Invest.	NASA Tech. Officer	CASE Category
R DUBAYAH	HQ/R E MURPHY	19-Phys Sci, NEC
	....D M BUTLER	

**NAGW 3222 University of Maryland - College Park 4571**  
 NAGW-3222/UNIV MARYLAND @ COLLEGE PARK/STUDIES OF THE WESTWARD ELECTROJET AND FIELD-ALIGNED CURRENTS  

Period	Obligations	
10/21/1992-05/31/1994	FY93: \$54,666	TOTAL: \$54,666
Prin. Invest.	NASA Tech. Officer	CASE Category
R LOPEZ	HQ/E C WIPPLE	13-Physics
	....J D BOHLIN	

**NAGW 2952 University of Maryland - College Park 4565**  
 A EUROPEAN SUB-NODE FOR THE PDS SMALL BODIES NODE  

Period	Obligations	
03/03/1992-12/31/1993	FY93: \$45,992	TOTAL: \$72,092
Prin. Invest.	NASA Tech. Officer	CASE Category
M F A'HEARN	HQ/W L QUAIDE	11-Astronomy

**NAGW 3226 University of Maryland - College Park 4572**  
 THE IMPACT OF ALTERNATIVE COMPOSITING PROCEDURES  

Period	Obligations	
10/22/1992-09/30/1993	FY93: \$30,000	TOTAL: \$30,000
Prin. Invest.	NASA Tech. Officer	CASE Category
J R TOWNSHEND	HQ/M F MAIDEN	39-Env Sci, NEC
	....D M BUTLER	

**NAGW 3066 University of Maryland - College Park 4566**  
 A LABORATORY OBSERVATIONAL STUDY OF THE CHEMICAL EVOLUTION OF PROTOSTELLAR NEBULAE  

Period	Obligations	
04/28/1992-12/31/1993	FY93: \$30,000	TOTAL: \$60,000
Prin. Invest.	NASA Tech. Officer	CASE Category
L MUNDY	HQ/J A NUTH,III	19-Phys Sci, NEC

**NAGW 3235 University of Maryland - College Park 4573**  
 NAGW-3235/UNIV MARYLAND @ COLLEGE PARK/DETECTING THE LOCATION, SPATIAL EXTENT, RATES AND IMPACTS  

Period	Obligations	
10/26/1992-08/31/1993	FY93: \$432,067	TOTAL: \$432,067
Prin. Invest.	NASA Tech. Officer	CASE Category
J TOWNSHEND	HQ/M E MAIDEN	39-Env Sci, NEC
	....D M BUTLER	

**NAGW 3080 University of Maryland - College Park 4567**  
 FRAGMENTATION AND MICROSTRUCTURE OF SOLAR FLARE ENERGY RELEASE  

Period	Obligations	
05/15/1992-06/30/1993	FY93: \$0	TOTAL: \$54,000
Prin. Invest.	NASA Tech. Officer	CASE Category
M R KUNDU	HQ/W J WAGNER	13-Physics
	....J D BOHLIN	

**NAGW 3309 University of Maryland - College Park 4574**  
 MONITORING MARS WATER VAPOR WITH THE VLA  

Period	Obligations	
01/06/1993-11/30/1993	FY93: \$50,709	TOTAL: \$50,709
Prin. Invest.	NASA Tech. Officer	CASE Category
A W GROSSMAN	HQ/G C BRINTON	11-Astronomy

**NAGW 3086 University of Maryland - College Park 4568**  
 SEA LEVEL AND PRESSURE VARIATIONS IN THE WESTERN TROPICAL ATLANTIC  

Period	Obligations	
05/29/1992-02/28/1993	FY93: \$0	TOTAL: \$30,000
Prin. Invest.	NASA Tech. Officer	CASE Category
J A CARTON	HQ/D ADAMEC	33-Oceanography
	....R A SCHIFFER	

**NAGW 3456 University of Maryland - College Park 4575**  
 PULSED ACCELERATION IN SOLAR FLARES  

Period	Obligations	
04/02/1993-06/30/1994	FY93: \$55,952	TOTAL: \$55,952
Prin. Invest.	NASA Tech. Officer	CASE Category
M J ASEHWANDEN	HQ/W J WAGNER	33-Oceanography
	....J D BOHLIN	

**NASA'S UNIVERSITY PROGRAM**  
**MARYLAND (Continued)**

**NAGW 3526 University of Maryland - College Park 4576**  
 NAGW-3526/UNIV MARYLAND/COSMIC RAY PROTON AND HELIUM  
 SPECTRA IN A BALLOON BORNE EXPERIMENT  
*Period Obligations*  
 04/22/1993-02/28/1994 FY93: \$107,770 TOTAL: \$107,770  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 E SEO HQ/W V JONES 13-Physics  
 ....G L WITHBROE

**NAGW 3588 University of Maryland - College Park 4577**  
 AQUEOUS GEOCHEMISTRY, VOLCANOLOGY, AND THE EVOLUTI ON  
 OF THE MARTIAN ATMOSPHERE  
*Period Obligations*  
 05/14/1993-02/28/1994 FY93: \$31,875 TOTAL: \$31,875  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M W SCHAEFER HQ/J M BOYCE 32-Geological Sci

**NAGW 3596 University of Maryland - College Park 4578**  
 DYNAMICAL MODELING AND PREDICTION OF SUBSTORMS  
*Period Obligations*  
 06/11/1993-01/31/1994 FY93: \$70,000 TOTAL: \$70,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A SHARMA HQ/E C WHIPPLE 13-Physics  
 ....G L WITHBROE

**NAGW 3598 University of Maryland - College Park 4579**  
 SURFACE COMPOSITION OF IO  
*Period Obligations*  
 05/26/1993-03/31/1994 FY93: \$54,988 TOTAL: \$54,988  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R KHANNA HQ/H C BRINTON 19-Phys Sci, NEC

**NAGW 3625 University of Maryland - College Park 4580**  
 RE-OS ISOTOPE INVESTIGATION OF METEORITES  
*Period Obligations*  
 06/03/1993-07/31/1994 FY93: \$66,950 TOTAL: \$66,950  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R WALKER HQ/J BOYCE 32-Geological Sci

**NAGW 3640 University of Maryland - College Park 4581**  
 CRYOGENIC MONOCRYSTALLINE OPTICAL CAVITY FOR LASER  
 STABILIZATION AND PRECISE TIME MEASUREMENTS  
*Period Obligations*  
 06/15/1993-03/31/1994 FY93: \$55,000 TOTAL: \$55,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J RICHARD HQ/R V STACHNIK 11-Astronomy  
 ....E J WEILER

**NAGW 3715 University of Maryland - College Park 4582**  
 CENTER FOR HYPERSONIC EDUCATION AND RESEARCH  
*Period Obligations*  
 08/24/1993-08/31/1996 FY93: \$50,000 TOTAL: \$50,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M J LEWIS HQ/S M WANDER 49-Engr, NEC

**NAGW 3729 University of Maryland - College Park 4583**  
 EVOLUTION OF AEROSOL SIZE DISTRIBUTION IN THE CLOU DY  
 BOUNDARY LAYER  
*Period Obligations*  
 09/09/1993-08/31/1996 FY93: \$69,843 TOTAL: \$69,843  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 G BLUTH HQ/M BALTUCK 31-Atmos Sci  
 ....A C JANETOS

**NAS 3-25370 University of Maryland - College Park 4584**  
 CRITICAL FLUID LIGHT SCATTERING EXPERIMENTS (ZENO)  
*Period Obligations*  
 12/22/1988-04/09/1995 FY93: \$2,924,999 TOTAL: \$20,628,999  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R W GAMMON LERC/R W LAUVER 13-Physics

**NAS 5-29163 University of Maryland - College Park 4585**  
 PROVIDE SUPPORT FOR SCIENTIFIC PERSONNNEL PARTICIPATION  
 IN THE COOPERATIVE VISITORS PROGRAM  
*Period Obligations*  
 05/17/1985-10/30/1992 FY93: \$0 TOTAL: \$535,033  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 F BAER GSFC/E R KREINS 31-Atmos Sci

**NAS 5-30370 University of Maryland - College Park 4586**  
 SOLAR WIND AND SUPERHERMAL ION COMPOSITION  
 INSTRUMENT  
*Period Obligations*  
 03/10/1989-08/16/1995 FY93: \$467,900 TOTAL: \$4,146,600  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S GLOECKLER GSFC/D CROSBY 41-Aero Engr

**NAS 5-30704 University of Maryland - College Park 4587**  
 LETTER CONTRACT FOR SOLAR ANOMALOUS AND  
 MAGETOSPHERIC  
*Period Obligations*  
 08/02/1989-07/31/1995 FY93: \$787,021 TOTAL: \$7,434,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 G M MASON GSFC/W R NAGEL 13-Physics

**NAS 5-30927 University of Maryland - College Park 4588**  
 REFURBISH AND FABRICATE STEP INSTRUMENT  
*Period Obligations*  
 07/03/1990-09/30/1993 FY93: \$112,000 TOTAL: \$838,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 G M MASON GSFC/T VON ROSENVINGE 31-Atmos Sci

**NAS 5-31166 University of Maryland - College Park 4589**  
 ISTP INVESTIGATION DEFINITION PHASE SOHO'S CELIAS  
*Period Obligations*  
 06/01/1990-07/01/1995 FY93: \$601,000 TOTAL: \$2,207,100  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 F IPAVICH GSFC/L CHRISTENSEN 31-Atmos Sci

**NAS 5-31341 University of Maryland - College Park 4590**  
 THE GRID ANALYSIS AND DISPLAY SYSTEM: A PRACTICAL TOOL  
 FOR EARTH SCIENCE VISUALIZATION  
*Period Obligations*  
 05/30/1991-05/29/1992 FY93: \$0 TOTAL: \$90,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J KINTER GSFC/J BREDEKAMP 22-Computer Science  
 ....H BURRITT

**NAS 5-31365 University of Maryland - College Park 4591**  
 EOS EXECUTION PHASE  
*Period Obligations*  
 01/02/1992-12/14/2001 FY93: \$250,000 TOTAL: \$421,790  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 C JUSTICE GSFC/H OSEROFF 39-Env Sci, NEC

**NASA'S UNIVERSITY PROGRAM**  
**MARYLAND (Continued)**

**NAS 5-31732 University of Maryland - College Park 4592**  
 R AND D STUDIES IN BIOSPHERE-ATMOSPHERE INTERACTIONS  

Period	Obligations	
11/22/1991-12/31/1999	FY93: \$198,000	TOTAL: \$417,600
Prin. Invest.	NASA Tech. Officer	CASE Category
C JUSTICE	GSFC/P SELLERS	31-Atmos Sci

**NAS 8-38137 University of Maryland - College Park 4593**  
 DEVELOPEMNT OF A 3 AXIS SUPERCONDUCTING GRAVITY  
 GRADIOMETER FOR SPACE- BORNE GRAVITY SURVEY  

Period	Obligations	
06/29/1989-08/31/1993	FY93: \$6,331	TOTAL: \$1,538,669
Prin. Invest.	NASA Tech. Officer	CASE Category
H J PAIK	MSFC/S H MORGAN JR.	42-Astro Engr
M V MOODY		

**NCA 2-510 University of Maryland - College Park 4594**  
 ROTORCRAFT FLIGHT CONTROL SYSTEM DESIGN METHODOLOGIES  
 PHASE II  

Period	Obligations	
05/10/1990-03/31/1992	FY93: \$0	TOTAL: \$80,000
Prin. Invest.	NASA Tech. Officer	CASE Category
A L TITS	ARC/M TISCHLER	41-Aero Engr
J BARLOW		

**NCA 2-511 University of Maryland - College Park 4595**  
 SIMULATION MODELING FOR COMBAT ROTORCRAFT FLIGHT  
 CONTROL SYSTEM DESIGN, PHASE II  

Period	Obligations	
05/09/1990-08/31/1992	FY93: \$0	TOTAL: \$80,000
Prin. Invest.	NASA Tech. Officer	CASE Category
R CELI	ARC/M B TISCHLER	41-Aero Engr

**NCA 2-611 University of Maryland - College Park 4596**  
 AEROTHERMODYNAMICS AND CONTROL STUDIES OF A WAVER  
 IDER-BASED VEHICLE  

Period	Obligations	
05/14/1991-04/30/1993	FY93: \$19,929	TOTAL: \$79,821
Prin. Invest.	NASA Tech. Officer	CASE Category
M J LEWIS	ARC/J BOWLES	41-Aero Engr

**NCA 2-624 University of Maryland - College Park 4597**  
 NUMERICAL EXPERIMENTS CONCERNING THE UNSTEADY FLOW  
 IN HYPERSONIC IMPULSE FACILITIES  

Period	Obligations	
06/17/1991-12/31/1993	FY93: \$0	TOTAL: \$39,634
Prin. Invest.	NASA Tech. Officer	CASE Category
M J LEWIS	ARC/G S DEIWERT	41-Aero Engr
J D ANDERSON		

**NCC 1-25 University of Maryland - College Park 4598**  
 AIRBORNE WATER VAPOR LIDAR EXPERIMENTS  

Period	Obligations	
07/27/1979-08/31/1992	FY93: \$13	TOTAL: \$573,310
Prin. Invest.	NASA Tech. Officer	CASE Category
T D WILKERSON	LARC/E V BROWELL	31-Atmos Sci
H SINGH	....A F CARTER	

**NCC 2-560 University of Maryland - College Park 4599**  
 NASA RESEARCH PROGRAM IN PARALLEL PROCESSING  

Period	Obligations	
09/01/1988-01/31/1992	FY93: \$0	TOTAL: \$1,544,050
Prin. Invest.	NASA Tech. Officer	CASE Category
L S DAVIS	ARC/H LUM	22-Computer Science
A ROSENFELD	....D MCKELLAR	

**NCC 2-829 University of Maryland - College Park 4600**  
 EVALUATION OF METHODOLOGY FOR TESTING AND ANALYSIS OF  
 ADVANCED ROTORS  

Period	Obligations	
09/30/1993-12/31/1993	FY93: \$20,000	TOTAL: \$20,000
Prin. Invest.	NASA Tech. Officer	CASE Category
I CHOPRA	ARC/W G WARMBRODT	41-Aero Engr
F HARRIS	....F FELKER	

**NCC 2-5003 University of Maryland - College Park 4601**  
 THE VELOCITY AND VORTICITY FIELDS OF THE TURBULENT NEAR  
 WAKE OF A CIRCULAR CYLINDER  

Period	Obligations	
09/28/1993-10/31/1994	FY93: \$20,000	TOTAL: \$20,000
Prin. Invest.	NASA Tech. Officer	CASE Category
J M WALLACE	ARC/P MOIN	41-Aero Engr

**NCC 5-26 University of Maryland - College Park 4602**  
 ANALYSIS OF TERRESTRIAL CONDITIONS AND DYNAMICS  

Period	Obligations	
12/01/1982-10/31/1994	FY93: \$317,642	TOTAL: \$1,546,486
Prin. Invest.	NASA Tech. Officer	CASE Category
S N GOWARD	GSFC/E M MIDDLETON	31-Atmos Sci
C WALTHALL	....C J TUCKER	

**NCC 5-35 University of Maryland - College Park 4603**  
 RESEARCH RELATIVE TO ATMOSPHERIC PHYSICS AND  
 SPACECRAFT APPLICATIONS STUDIES  

Period	Obligations	
11/14/1985-02/28/1994	FY93: \$248,474	TOTAL: \$4,176,301
Prin. Invest.	NASA Tech. Officer	CASE Category
S W GREENWOOD	GSFC/W R HOEGY	19-Phys Sci, NEC
	....F HERRERO	

**NCC 5-39 University of Maryland - College Park 4604**  
 RESEARCH ATMOSPHERIC SCIENCES--SUMMER INSTITUTE  

Period	Obligations	
07/15/1988-04/30/1994	FY93: \$88,727	TOTAL: \$593,113
Prin. Invest.	NASA Tech. Officer	CASE Category
F BAER	GSFC/E R KREINS	31-Atmos Sci

**NCC 5-54 University of Maryland - College Park 4605**  
 COOPERATIVE RESEARCH IN SATELLITE BASED STUDIES OF  
 PHOTONS AND CHARGED PARTICLES  

Period	Obligations	
08/04/1993-08/14/1994	FY93: \$814,170	TOTAL: \$814,170
Prin. Invest.	NASA Tech. Officer	CASE Category
J TRASCO	GSFC/A K HARDING	13-Physics

**NCC 8-25 University of Maryland - College Park 4606**  
 GAMMA RAY STUDIES  

Period	Obligations	
09/10/1993-09/10/1994	FY93: \$31,299	TOTAL: \$31,299
Prin. Invest.	NASA Tech. Officer	CASE Category
R SAGDEEV	MSFC/G FISHMAN	11-Astronomy

**NASA'S UNIVERSITY PROGRAM**  
**MARYLAND (Continued)**

**NGT 00-030-038 University of Maryland - College Park 4607**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM

Period	Obligations	
08/23/1991-08/31/1994	FY93: \$22,000	TOTAL: \$66,000
Prin. Invest.	NASA Tech. Officer	CASE Category
Y QIAN	HQ/D M BUTLER	22-Computer Science
F BAER	....G S WILSON	

**NGT 00-030-089 University of Maryland - College Park 4608**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM

Period	Obligations	
09/19/1991-08/31/1993	FY93: \$0	TOTAL: \$44,000
Prin. Invest.	NASA Tech. Officer	CASE Category
D O FULLER	HQ/D M BUTLER	39-Env Sci, NEC
S D PRINCE	....G S WILSON	

**NGT 00-030-130 University of Maryland - College Park 4609**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM

Period	Obligations	
10/21/1992-08/31/1994	FY93: \$44,000	TOTAL: \$44,000
Prin. Invest.	NASA Tech. Officer	CASE Category
A C SOFFER	HQ/G ASRAR	22-Computer Science
	....D M BUTLER	

**NGT 00-030-168 University of Maryland - College Park 4610**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM

Period	Obligations	
08/23/1993-08/31/1996	FY93: \$22,000	TOTAL: \$22,000
Prin. Invest.	NASA Tech. Officer	CASE Category
S D PRINCE	HQ/G ASRAR	39-Env Sci, NEC
	....D M BUTLER	

**NGT 00-030-201 University of Maryland - College Park 4611**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM

Period	Obligations	
08/27/1993-08/31/1994	FY93: \$22,000	TOTAL: \$22,000
Prin. Invest.	NASA Tech. Officer	CASE Category
J R TOWNSHEND	HQ/G ASRAR	39-Env Sci, NEC
	....D M BUTLER	

**NGT 00-050-424 University of Maryland - College Park 4612**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM

Period	Obligations	
08/04/1989-08/14/1993	FY93: \$0	TOTAL: \$84,000
Prin. Invest.	NASA Tech. Officer	CASE Category
J S BARAS	HQ/F C OWENS	49-Engr, NEC

**NGT 00-050-658 University of Maryland - College Park 4613**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM

Period	Obligations	
09/12/1990-08/31/1993	FY93: \$0	TOTAL: \$66,000
Prin. Invest.	NASA Tech. Officer	CASE Category
D C HAMILTON	HQ/F C OWENS	13-Physics

**NGT 00-050-718 University of Maryland - College Park 4614**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM

Period	Obligations	
07/15/1991-08/31/1994	FY93: \$22,000	TOTAL: \$66,000
Prin. Invest.	NASA Tech. Officer	CASE Category
L KANAL	HQ/F C OWENS	21-Mathematics

**NGT 00-050-721 University of Maryland - College Park 4615**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM

Period	Obligations	
04/30/1991-06/30/1994	FY93: \$22,000	TOTAL: \$66,000
Prin. Invest.	NASA Tech. Officer	CASE Category
R RAMATY	HQ/F C OWENS	13-Physics

**NGT 00-050-744 University of Maryland - College Park 4616**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM

Period	Obligations	
08/30/1991-08/14/1992	FY93: \$0	TOTAL: \$44,000
Prin. Invest.	NASA Tech. Officer	CASE Category
I CHOPRA	HQ/F C OWENS	42-Astro Engr

**NGT 00-050-762 University of Maryland - College Park 4617**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM

Period	Obligations	
07/01/1991-06/30/1993	FY93: \$0	TOTAL: \$44,000
Prin. Invest.	NASA Tech. Officer	CASE Category
B SHNEIDERMAN	HQ/F C OWENS	22-Computer Science

**NGT 00-050-763 University of Maryland - College Park 4618**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM

Period	Obligations	
11/26/1991-06/30/1993	FY93: \$0	TOTAL: \$44,000
Prin. Invest.	NASA Tech. Officer	CASE Category
R RAMATY	GSFC/G SOFFEN	13-Physics

**NGT 00-050-764 University of Maryland - College Park 4619**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM

Period	Obligations	
11/08/1991-06/30/1993	FY93: \$0	TOTAL: \$41,000
Prin. Invest.	NASA Tech. Officer	CASE Category
A S WILSON	GSFC/G SOFFAN	11-Astronomy

**NGT 00-050-808 University of Maryland - College Park 4620**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM

Period	Obligations	
08/16/1991-06/30/1993	FY93: \$0	TOTAL: \$41,586
Prin. Invest.	NASA Tech. Officer	CASE Category
R A BELL	HQ/J ALEXANDER	11-Astronomy

**NGT 00-050-926 University of Maryland - College Park 4621**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM

Period	Obligations	
06/15/1992-06/30/1994	FY93: \$22,000	TOTAL: \$44,000
Prin. Invest.	NASA Tech. Officer	CASE Category
K E HEROLD	GSFC/G SOFFEN	46-Mech Engr

**NGT 00-050-951 University of Maryland - College Park 4622**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM

Period	Obligations	
08/14/1992-08/31/1994	FY93: \$22,000	TOTAL: \$44,000
Prin. Invest.	NASA Tech. Officer	CASE Category
J JAJA	GSFC/G SOFFEN	45-Elec Engr

**NASA'S UNIVERSITY PROGRAM**  
**MARYLAND (Continued)**

**NGT 00-050-957 University of Maryland - College Park 4623**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period* *Obligations*  
 06/26/1992-07/31/1994 FY93: \$22,000 TOTAL: \$44,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 A GALVIN HQ/J K ALEXANDER 13-Physics

**NGT 00-051-017 University of Maryland - College Park 4624**  
 GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period* *Obligations*  
 05/13/1993-06/30/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 M DAGENAIS GSFC/G SOFFEN 45-Elec Engr

**NGT 00-051-096 University of Maryland - College Park 4625**  
 GRADUATE STUDENT RESEARCHERS (UMF) PROGRAM  
*Period* *Obligations*  
 07/07/1993-06/30/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 R MUSHOTZKY GSFC/M BURRELL 11-Astronomy

**NGT 00-060-006 University of Maryland - College Park 4626**  
 SUMMER FACULTY FELLOWSHIP PROGRAM  
*Period* *Obligations*  
 05/07/1991-12/31/1993 FY93: \$456,322 TOTAL: \$822,318  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 H R BOROSON HQ/A S MCGEE 49-Engr, NEC  
 ....E T SCHWARTZ

**NGT 00-070-283 University of Maryland - College Park 4627**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
 MINORITY FOCUS PROGRAM  
*Period* *Obligations*  
 06/15/1992-06/30/1994 FY93: \$0 TOTAL: \$22,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 C GREBOGI GSFC/B SOFFEN 21-Mathematics

**NGT 00-070-321 University of Maryland - College Park 4628**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
 MINORITY FOCUS PROGRAM  
*Period* *Obligations*  
 06/29/1993-07/31/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 M C RABENHORST HQ/D K RUSSELL 99-Multi-Discip

**NSG-5123 University of Maryland - College Park 4629**  
 EVALUATION OF SOFTWARE ENGR DISCIPLINES  
*Period* *Obligations*  
 08/01/1976-09/30/1993 FY93: \$464,840 TOTAL: \$2,669,292  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 V R BASILI GSFC/R PAJERSKI 22-Computer Science  
 D H ROMBACH  
 M V ZELKOWITZ

**NSG-5172 University of Maryland - College Park 4630**  
 RAMAN SPECTROSCOPY OF COSMIC ICES AND PLANETARY  
 ATMOSPHERES  
*Period* *Obligations*  
 04/01/1977-05/14/1992 FY93: \$0 TOTAL: \$727,349  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 R K KHANNA GSFC/J NUTH 12-Chemistry  
 ....J A NUTH

**NCA 5-99 University of Maryland - Eastern Shore 4631**  
 ENGINEERING AND PRE-ENGINEERING ACTIVITIES  
*Period* *Obligations*  
 06/15/1982-05/31/1994 FY93: \$50,000 TOTAL: \$564,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 R E MULLER GSFC/D MENCHAN 45-Elec Engr  
 ....J W CHAPMAN

**NGT 00-090-045 University of Maryland - Eastern Shore 4632**  
 UNDERGRADUATE STUDENT RESEARCHERS PRG  
*Period* *Obligations*  
 08/21/1991-08/31/1994 FY93: \$38,956 TOTAL: \$123,093  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 B ANDERSON HQ/B WHITE 49-Engr, NEC

**NAG 5-2194 University of Maryland Baltimore County 4633**  
 ADAPTIVE PHASE ALIGNMENT OF SYNTHETIC APERTURES FOR  
 COHERENT OPTICAL COMMUNICATIONS  
*Period* *Obligations*  
 02/09/1993-02/14/1994 FY93: \$74,886 TOTAL: \$74,886  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 J M MORRIS GSFC/B D SEERY 45-Elec Engr

**NGT 00-070-331 University of Maryland Baltimore County 4634**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
 MINORITY FOCUS PROGRAM  
*Period* *Obligations*  
 06/29/1993-06/30/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 J VINCENT HQ/D K RUSSELL 12-Chemistry

**MASSACHUSETTS**

**NAG 1-955 Boston College 4635**  
 ENHANCEMENT OF SOLID-STATE INFRARED LASER OUTPUT VIA  
 INTERIONIC ENERGY TRANSFER  
*Period* *Obligations*  
 01/17/1989-11/30/1993 FY93: \$36,456 TOTAL: \$154,950  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 B DIBARTOLO LARC/P BROCKMAN 13-Physics

**NAG 5-1544 Boston College 4636**  
 PLASMA DENSITY STRUCTURE AND ELECTRODYNAMICS OF THE  
 EQUATOR AND IN THE POLAR CAP  
*Period* *Obligations*  
 04/17/1991-04/30/1993 FY93: \$0 TOTAL: \$93,909  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 J BASU GSFC/G D BULLOCK 19-Phys Sci, NEC

**NAG 5-2266 Boston College 4637**  
 CLUSTER RAPID IMAGING ELECTRON SPECTROMETER EFFORT  
*Period* *Obligations*  
 05/07/1993-05/14/1994 FY93: \$68,400 TOTAL: \$68,400  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 T A FRITZ GSFC/M L GOLDSTEIN 13-Physics

**NASA'S UNIVERSITY PROGRAM  
MASSACHUSETTS (Continued)**

**NAGW 2082 Boston College 4638**  
GEOMETRIC-OPTICAL DISCRETE-ELEMENT SCENE MODELING II  
*Period Obligations*  
05/02/1990-12/31/1992 FY93: \$0 TOTAL: \$300,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
A H STRAHLER HQ/G ASRAR 13-Physics  
....T J PIEPER

**NGT 00-050-996 Boston College 4639**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
08/20/1992-08/31/1994 FY93: \$22,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R L CORNVILLANN HQ/J K ALEXANDER 13-Physics

**NAG 2-747 Boston University 4640**  
FIFI IMAGING OF FINE STRUCTURE LINES IN THE NGC633 4  
MOLECULAR CLOUD COMPLEX  
*Period Obligations*  
01/16/1992-03/31/1993 FY93: \$2,396 TOTAL: \$47,396  
*Prin. Invest. NASA Tech. Officer CASE Category*  
A P LANE ARC/C D LAUGHLIN 11-Astronomy  
J M JACKSON ....C M GILLESPIE

**NAG 5-640 Boston University 4641**  
NEAR EARTH SPACE ENVIRONMENT EXPERIMENT  
*Period Obligations*  
01/08/1987-01/31/1994 FY93: \$50,000 TOTAL: \$765,586  
*Prin. Invest. NASA Tech. Officer CASE Category*  
M MENDILLO GSFC/L J EARLY 13-Physics  
....R H PLESS

**NAG 5-690 Boston University 4642**  
A SOUNDING ROCKET PROGRAM IN EXTREME AND FAR UV  
INTERFEROMETRY  
*Period Obligations*  
04/29/1992-04/30/1994 FY93: \$275,000 TOTAL: \$517,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
S CHAKRABARTI GSFC/R H PLESS 13-Physics

**NAG 5-694 Boston University 4643**  
PARTICIPATION IN THE GEMINI ROCKET PROGRAM  
*Period Obligations*  
06/19/1992-12/31/1993 FY93: \$0 TOTAL: \$70,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
S CHAKRABARTI GSFC/L J EARLY 13-Physics  
....R H PLESS

**NAG 5-695 Boston University 4644**  
A COLLIDING PHOTOIONIZATION SOLAR SPECTROMETER  
*Period Obligations*  
09/10/1992-09-14/1993 FY93: \$120,000 TOTAL: \$120,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
S CHAKRABARTI GSFC/L J EARLY 13-Physics  
....R H PLESS

**NAG 5-1566 Boston University 4645**  
GAMMA RAY EMISSION FROM RADIO-LOUD QUASARS  
*Period Obligations*  
04/17/1991-11/14/1993 FY93: \$75,000 TOTAL: \$108,777  
*Prin. Invest. NASA Tech. Officer CASE Category*  
A P MARSCHER GSFC/J NORRIS 11-Astronomy  
....D A KNIFFEN

**NAG 5-1815 Boston University 4646**  
NOISE CHARACTERIZATION OF BERGEN CHIP 'HUGIN'  
*Period Obligations*  
09/30/1991-06/30/1992 FY93: \$0 TOTAL: \$25,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
A MAVRETIC GSFC/D N BAKER 13-Physics

**NAG 5-1943 Boston University 4647**  
ROSAT/VLBI/JCMT OBSERVATIONS OF FLAT SPECTRUM RADI  
*Period Obligations*  
03/16/1992-03/31/1994 FY93: \$35,000 TOTAL: \$45,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
A P MARSCHER GSFC/R PETRE 11-Astronomy

**NAG 5-1997 Boston University 4648**  
LOW MASS STARS IN BOK GLOBULES  
*Period Obligations*  
06/12/1992-06/14/1994 FY93: \$0 TOTAL: \$28,491  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D P CLEMENS GSFC/D WEST 11-Astronomy

**NAG 5-2028 Boston University 4649**  
GAMMA-RAY EMISSION FROM THE STARBURST GALAXY NGC 2 53  
*Period Obligations*  
07/08/1992-07/14/1994 FY93: \$30,000 TOTAL: \$50,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J M JACKSON GSFC/J P NORRIS 11-Astronomy  
....N WHITE

**NAG 5-2115 Boston University 4650**  
STUDY OF ENERGY TRANSFER THROUGH THE EARTH'S MAGNE  
TOSPHERE USING ISTP ION COMPOSITION MEASUREMENTS  
*Period Obligations*  
09/28/1992-09/30/1993 FY93: \$60,000 TOTAL: \$60,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
T FRITZ GSFC/M ACUNA 13-Physics  
....T S TAYLOR

**NAG 5-2260 Boston University 4651**  
FIRST MEASUREMENTS OF HELIUM ON MARS  
*Period Obligations*  
05/04/1989-12/14/1994 FY93: \$90,000 TOTAL: \$90,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
S CHAKRABARTI GSFC/D WEST 11-Astronomy

**NAGW 1608 Boston University 4652**  
VARIABILITY OF THE HIGH-ENERGY CONTINUUM EMISSION  
*Period Obligations*  
01/11/1989-12/31/1991 FY93: \$0 TOTAL: \$229,280  
*Prin. Invest. NASA Tech. Officer CASE Category*  
A P MARSCHER HQ/L J KALUZIENSKI 11-Astronomy  
....A N BUNNER

**NAGW 1627 Boston University 4653**  
MAGNETOSPHERIC SUBSTORMS  
*Period Obligations*  
03/13/1989-02/28/1994 FY93: \$54,936 TOTAL: \$288,285  
*Prin. Invest. NASA Tech. Officer CASE Category*  
W J HUGHES HQ/M M MELLOTT 13-Physics  
....T W PERRY

**NASA'S UNIVERSITY PROGRAM  
MASSACHUSETTS (Continued)**

**NAGW 1629 Boston University 4654**  
ACTIVE EXPERIMENTS: NEW APPROACHES TO ANALYSIS  
*Period Obligations*  
03/02/1989-02/28/1994 FY93: \$98,000 TOTAL: \$456,250  
*Prin. Invest. NASA Tech. Officer CASE Category*  
M MENDILLO HQ/M M MELLOTT 13-Physics  
...../T W PERRY

**NAGW 2138 Boston University 4655**  
MAGPIE: A MAGNETIC PASSIVE ISOTOPE EXPERIMENT  
*Period Obligations*  
07/30/1990-02/28/1994 FY93: \$120,000 TOTAL: \$420,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
S P AHLEN HQ/W V JONES 13-Physics  
...../J C LING

**NAGW 2627 Boston University 4656**  
NAGW-2627/BOSTON UNIV/CONFIGURATION OF THE NEAR-EA RTH PLASMA SHEET  
*Period Obligations*  
08/19/1991-05/31/1994 FY93: \$72,000 TOTAL: \$212,837  
*Prin. Invest. NASA Tech. Officer CASE Category*  
G M ERICKSON HQ/M M MELLOTT 13-Physics  
...../J D BOHLIN

**NAGW 2679 Boston University 4657**  
STUDIES OF JUPITER'S SODIUM MAGNETO-NEBULA AND OTHER POSSIBLE EXTENDED STRUCTURES  
*Period Obligations*  
07/26/1991-04/30/1994 FY93: \$84,000 TOTAL: \$248,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
M MENDILLO HQ/M M MELLOTT 13-Physics  
...../J D BOHLIN

**NAGW 2856 Boston University 4658**  
THE INFLUENCE OF GLOBAL CONVECTION ON REGION-1 BIR KELAND CURRENT STRUCTURE  
*Period Obligations*  
01/31/1992-03/31/1994 FY93: \$55,242 TOTAL: \$110,484  
*Prin. Invest. NASA Tech. Officer CASE Category*  
G M ERICKSON HQ/E C WHIPPLE 13-Physics  
...../J D BOHLIN

**NAGW 2890 Boston University 4659**  
RING MICROSIGNATURES AT NEPTUNE  
*Period Obligations*  
02/19/1992-03/31/1994 FY93: \$33,726 TOTAL: \$67,034  
*Prin. Invest. NASA Tech. Officer CASE Category*  
W J HUGHES HQ/W L QUAIDE 19-Phys Sci, NEC

**NAGW 3059 Boston University 4660**  
NAGW-3059/BOSTON UNIV/FURTHER DEVELOPMENT OF THE EUV/FUV SPATIAL HETERODYNE INTERFEROMETER  
*Period Obligations*  
05/06/1992-02/28/1993 FY93: \$0 TOTAL: \$30,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
S CHAKRABARTI HQ/R V STACHNIK 11-Astronomy  
...../E J WEILER

**NAS 5-30917 Boston University 4661**  
INVESTIGATION MAPPING SPECTRAL DIRECTIONAL RADIANCE  
*Period Obligations*  
03/29/1990-12/14/1991 FY93: \$1 TOTAL: \$107,608  
*Prin. Invest. NASA Tech. Officer CASE Category*  
A H STRAHLER GSFC/H OSEROFF 31-Atmos Sci

**NAS 5-31369 Boston University 4662**  
MODERATE RESOLUTION IMAGING SPECTROMETER INVESTIGATION - LAND COVER CHANGES  
*Period Obligations*  
12/30/1991-12/14/2001 FY93: \$243,440 TOTAL: \$388,440  
*Prin. Invest. NASA Tech. Officer CASE Category*  
W STRAHLER GSFC/H OSEROFF 31-Atmos Sci

**NAS 8-36324 Boston University 4663**  
STUDY ENTITLED RELEASES TO INDUCE PLASMA INSTABILITIES AT THE EQUATOR  
*Period Obligations*  
04/16/1985-09/30/1993 FY93: \$94,378 TOTAL: \$2,654,918  
*Prin. Invest. NASA Tech. Officer CASE Category*  
M MENDILLO MSFC/D L REASONER 31-Atmos Sci

**NGT 00-050-314 Boston University 4664**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
07/21/1988-01/31/1992 FY93: \$0 TOTAL: \$58,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
A P MARCHER HQ/F C OWENS 11-Astronomy

**NGT 00-050-497 Boston University 4665**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
09/06/1989-08/31/1992 FY93: \$0 TOTAL: \$62,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
S GROSSBERG HQ/F C OWENS 51-Biological Sci

**NGT 00-050-878 Boston University 4666**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
07/14/1992-05/31/1994 FY93: \$22,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
T G BIFANO MSFC/F SIX 46-Mech Engr

**NAG 9-515 Brandeis University 4667**  
SENSORY MOTOR CONTROL AND MOTION SICKNESS IN AN ARTIFICIAL GRAVITY ENVIRONMENT  
*Period Obligations*  
05/10/1991-04/01/1994 FY93: \$375,000 TOTAL: \$1,138,375  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J LACKNER JSC/D L HARM 56-Medical Sciences  
P DIZIO

**NGT 00-051-078 Brandeis University 4668**  
GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
06/03/1993-06/30/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D H ROBERTS HQ/D HOLLAND 42-Astro Engr

**NAG 3-1402 Clark University 4669**  
ABSOLUTE AND CONVECTIVE INSTABILITY OF A LIQUID JET AT MICROGRAVITY  
*Period Obligations*  
12/29/1992-12/31/1993 FY93: \$69,000 TOTAL: \$69,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
S P LIN LERC/M E HILL 19-Phys Sci, NEC

**NASA'S UNIVERSITY PROGRAM  
MASSACHUSETTS (Continued)**

**NAGW 3187 Clark University 4670**  
NAGW-3187/CLARK UNIV/THE USE OF SATELLITE IMAGERY IN  
ASSESSING ENVIRONMENTAL CRITICALITY IN THE  
*Period Obligations*  
08/21/1992-08/31/1993 FY93: \$0 TOTAL: \$53,618  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R KASPERSON HQ/M R HELFERT 39-Env Sci, NEC  
B TURNER ....D M BUTLER

**NGT 00-030-179 Clark University 4671**  
NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
09/01/1993-08/31/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J R EASTMAN HQ/G ASRAR 39-Env Sci, NEC  
....D M BUTLER

**NAG 5-2261 College of The Holy Cross 4672**  
SEARCH FOR THE IRON ABSORPTION EDGES IN THE TAILS OF  
X-RAY BURSTS  
*Period Obligations*  
05/04/1993-05/14/1994 FY93: \$12,920 TOTAL: \$12,920  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R ROSS GSFC/N WHITE 11-Astronomy

**NAG 1-1305 Harvard University 4673**  
HIGH ALTITUDE AIRCRAFT AND BALLOON-BORNE OBSERVATI ON  
IN EARTH'S STRATOSPHERE  
*Period Obligations*  
06/28/1991-12/31/1993 FY93: \$1,700,000 TOTAL: \$4,713,695  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J G ANDERSON LARC/L R POOLE 31-Atmos Sci

**NAG 1-1345 Harvard University 4674**  
MINDFULNESS AND EFFORT  
*Period Obligations*  
09/24/1991-06/30/1993 FY93: \$0 TOTAL: \$10,001  
*Prin. Invest. NASA Tech. Officer CASE Category*  
E J LANGER LARC/A T POPE 69-Psych, NEC

**NAG 1-1421 Harvard University 4675**  
PHOTOCHEMICAL AND BIOMASS BURNING INFLUENCES OVER THE  
SOUTH TROPICAL ATLANTIC: AN ANALYSIS OF TRACE  
*Period Obligations*  
03/20/1992-02/28/1995 FY93: \$121,667 TOTAL: \$143,351  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D J JACOB LARC/J M HOELL 31-Atmos Sci  
....R J BENDURA

**NAG 2-451 Harvard University 4676**  
MEASUREMENT OF BLOOD FLOWS,PRESSURES,AND CARDIAC  
DIMENSIONS IN RHESUS MONKEYS  
*Period Obligations*  
04/01/1987-10/31/1993 FY93: \$129,999 TOTAL: \$1,180,941  
*Prin. Invest. NASA Tech. Officer CASE Category*  
S F VATNER ARC/P X CALLAHAN 51-Biological Sci  
D R KNIGHT ....C M WINGET  
T A PATRICK

**NAG 2-704 Harvard University 4677**  
MUSCLE PROTEIN LOSS IN WEIGHTLESS ENVIRONMENTS: ROLE  
OF THE ATP-UBIQUITIN-DEPENDENT PROTEOLYTIC..  
*Period Obligations*  
05/16/1991-12/31/1993 FY93: \$61,923 TOTAL: \$181,923  
*Prin. Invest. NASA Tech. Officer CASE Category*  
A GOLDBERG ARC/E M HOLTON 51-Biological Sci

**NAG 2-705 Harvard University 4678**  
A LIGHTWEIGHT NOY INSTRUMENT FOR STRATOSPHERIC RE  
SEARCH  
*Period Obligations*  
05/20/1991-03/31/1993 FY93: \$75,000 TOTAL: \$546,288  
*Prin. Invest. NASA Tech. Officer CASE Category*  
S C WOFSY ARC/E P CONDON 31-Atmos Sci  
D W FAHEY ....C E DULLER

**NAG 2-731 Harvard University 4679**  
HIGH SPEED RESEARCH PROGRAM  
*Period Obligations*  
08/26/1991-05/31/1994 FY93: \$177,000 TOTAL: \$430,746  
*Prin. Invest. NASA Tech. Officer CASE Category*  
S C WOFSY ARC/E P CONDON 31-Atmos Sci  
....O B TOON

**NAG 2-843 Harvard University 4680**  
MICROBIAL BIOFILM FORMATION AND ITS CONSEQUENCES FOR  
THE CELSS PROGRAM  
*Period Obligations*  
06/10/1993-03/31/1994 FY93: \$133,000 TOTAL: \$133,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R MITCHELL ARC/R D MACELROY 51-Biological Sci

**NAG 3-1385 Harvard University 4681**  
THE EXTENSIONAL RHEOLOGY OF NON-NEWTONIAN MATERIAL S  
*Period Obligations*  
12/22/1992-11/30/1993 FY93: \$100,000 TOTAL: \$100,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
G MCKINLEY LERC/F CHIARAMONTE 46-Mech Engr

**NAG 5-538 Harvard University 4682**  
VLBI DETERMINATION AND INTERPRETATION OF RELATIVE  
MOTIONS WITHIN A NETWORK OF SITES  
*Period Obligations*  
05/01/1985-12/31/1992 FY93: \$21 TOTAL: \$922,001  
*Prin. Invest. NASA Tech. Officer CASE Category*  
I I SHAPIRO GSFC/H V FREY 32-Geological Sci

**NAG 5-841 Harvard University 4683**  
SUPERNOVA SPECTROSCOPY  
*Period Obligations*  
09/15/1986-09/14/1992 FY93: \$0 TOTAL: \$407,264  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R P KIRSHNER GSFC/D K WEST 11-Astronomy

**NAG 5-1369 Harvard University 4684**  
GEOMAGNETICS FIELD ANALYSIS  
*Period Obligations*  
09/10/1990-12/31/1992 FY93: \$20,000 TOTAL: \$110,018  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J BLOXHAM GSFC/J E WELKER 32-Geological Sci



**NASA'S UNIVERSITY PROGRAM  
MASSACHUSETTS (Continued)**

**NAG 5-1624 Harvard University 4685**  
SEARCH FOR NEW LOW LUMINOSITY GLOBULAR CLUSTER X-R AY  
SOURCES  
*Period* *Obligations*  
06/07/1991-06/14/1993 FY93: \$40,225 TOTAL: \$81,368  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J E GRINDLAY GSFC/R PETRE 11-Astronomy

**NAG 5-2243 Harvard University 4693**  
SEARCH FOR GAMMA-RAY EMISSION FROM MILLISECOND PUL  
SARS AND COMPACT BINARIES IN THE GLOBULAR . . . .  
*Period* *Obligations*  
04/08/1993-04/14/1994 FY93: \$30,000 TOTAL: \$30,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J E GRINDLAY GSFC/J P NORRIS 11-Astronomy  
....N WHITE

**NAG 5-1648 Harvard University 4686**  
EXTRAGALACTIC RADIO JETS AND THE INTERGALACTIC MED IUM  
*Period* *Obligations*  
06/17/1991-06/30/1992 FY93: \$3,606 TOTAL: \$6,394  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
M BIRKINSHAW GSFC/R PETRE 11-Astronomy

**NAG 5-2253 Harvard University 4694**  
EDDY CORRELATION FLUX MEASUREMENTS OF CO2, O3, AND NOY  
FOR BOREAS  
*Period* *Obligations*  
04/30/1993-04/30/1994 FY93: \$240,000 TOTAL: \$240,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
S C WOFSY GSFC/F G HALL 39-Env Sci, NEC  
....P SELLERS

**NAG 5-1690 Harvard University 4687**  
GAMMA RAYS FROM SUPERNOVAE  
*Period* *Obligations*  
10/16/1991-10/31/1993 FY93: \$49,620 TOTAL: \$104,552  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J E GRINDLAY GSFC/J P NORRIS 11-Astronomy  
....C A GEHRELS

**NAG 5-2305 Harvard University 4695**  
CONTINUING ULTRAVIOLET SPECTROSCOPY OF SN 1987A  
*Period* *Obligations*  
07/07/1993-07/14/1994 FY93: \$18,800 TOTAL: \$18,800  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R P KIRSHNER GSFC/D WEST 11-Astronomy

**NAG 5-1794 Harvard University 4688**  
NET EXCHANGE OF CO2 IN MIDLATITUDE FIRESTS  
*Period* *Obligations*  
10/30/1991-02/28/1993 FY93: \$0 TOTAL: \$30,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
S WOFSY GSFC/P SELLERS 31-Atmos Sci

**NAGW 599 Harvard University 4696**  
PALEOSOLS AS INDICATORS OF ATMOSPHERIC EVOLUTION  
*Period* *Obligations*  
04/01/1984-09/30/1993 FY93: \$78,000 TOTAL: \$630,903  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
A D HOLLAND HQ/J D RUMMEL 32-Geological Sci  
....M AVERNER

**NAG 5-1895 Harvard University 4689**  
EXTRAGALACTIC RADIO JETS AND THE INTERGALACTIC MED IUM  
*Period* *Obligations*  
02/12/1992-02/28/1993 FY93: \$22,142 TOTAL: \$5,370  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
M BIRKINSHAW GSFC/R PETRE 11-Astronomy

**NAGW 624 Harvard University 4697**  
DEVELOPMENT OF AN ENERGETIC X-RAY IMAGING EXPERIMENT  
(EXITE) AND ASSOCIATED BALLON GONDOLA  
*Period* *Obligations*  
04/01/1984-09/30/1993 FY93: \$329,973 TOTAL: \$2,615,538  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J GRINDLAY HQ/L J KALUZIENSKI 11-Astronomy  
....A N BUNNER

**NAG 5-1904 Harvard University 4690**  
OBSERVATIONAL IMPLICATIONS OF MERGERS OF NEUTRON S TAR  
AND BLACK HOLE BINARIES  
*Period* *Obligations*  
02/20/1992-09/30/1993 FY93: \$50,000 TOTAL: \$80,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R NARAYAN GSFC/J NORRIS 11-Astronomy  
T PIRAN ....N GEHRELS

**NAGW 893 Harvard University 4698**  
CONTINUED RESEARCH  
*Period* *Obligations*  
05/15/1986-11/30/1993 FY93: \$82,191 TOTAL: \$510,853  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
A H KNOLL HQ/J D RUMMEL 32-Geological Sci  
....M AVERNER

**NAG 5-2076 Harvard University 4691**  
GAMMA-RAYS FROM MOLECULAR CLOUDS IN THE OUTER GALA  
XY  
*Period* *Obligations*  
08/25/1992-11/30/1993 FY93: \$49,938 TOTAL: \$49,938  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
P THADDEUS GSFC/J P NORRIS 11-Astronomy  
S W DIGEL ....N WHITE

**NAGW 1230 Harvard University 4699**  
STRATOSPHERIC CHEMISTRYADRY  
*Period* *Obligations*  
02/29/1989-11/30/1993 FY93: \$192,500 TOTAL: \$1,239,203  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
S C WOFSY HQ/R D MCPETERS 31-Atmos Sci  
....M J PRATHER

**NAG 5-2077 Harvard University 4692**  
MULTIDIMENSIONAL SUPERCOMPUTER SIMULATIONS OF THE  
INTERSTELLAR MEDIUM: A LINK BETWEEN THE . . . .  
*Period* *Obligations*  
08/25/1992-08/31/1994 FY93: \$52,000 TOTAL: \$52,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R NARAYAN GSFC/J P NORRIS 11-Astronomy  
....N WHITE

**NAGW 1464 Harvard University 4700**  
DEVELOPMENT OF IN SITU DETECTION METHODS  
*Period* *Obligations*  
02/24/1989-12/31/1992 FY93: \$0 TOTAL: \$2,065,618  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J G ANDERSON HQ/M J KURYLO 31-Atmos Sci  
....R T WATSON

**NASA'S UNIVERSITY PROGRAM  
MASSACHUSETTS (Continued)**

**NAGW 1596 Harvard University 4701**  
ABSOLUTE TRANSITION PROBABILITIES OF LINES  
*Period Obligations*  
12/27/1988-12/14/1993 FY93: \$80,000 TOTAL: \$341,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
W H PARKINSON HQ/G C CLAYTON 31-Atmos Sci

**NAGW 1598 Harvard University 4702**  
THEORETICAL RESEARCH IN PLANETARY PHYSICS  
*Period Obligations*  
01/23/1989-11/30/1993 FY93: \$69,536 TOTAL: \$343,792  
*Prin. Invest. NASA Tech. Officer CASE Category*  
A G CAMERON HQ/J M BOYCE 32-Geological Sci

**NAGW 1687 Harvard University 4703**  
LABORATORY STUDIES IN ULTRAVIOLET SOLAR PHYSICS  
*Period Obligations*  
03/13/1989-09/30/1992 FY93: \$0 TOTAL: \$566,600  
*Prin. Invest. NASA Tech. Officer CASE Category*  
W H PARKINSON HQ/J D BOHLIN 13-Physics  
...../S KANE

**NAGW 1789 Harvard University 4704**  
ATMOSPHERE OF SUPERNOVA 1987A IN THE LARGE MEGALLANIC CLOUD  
*Period Obligations*  
07/10/1989-10/31/1992 FY93: \$0 TOTAL: \$181,718  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R KIRSHNER HQ/G C CLAYTON 31-Atmos Sci

**NAGW 2277 Harvard University 4705**  
INVESTIGATIONS OF STAR FORMATION PROCESSES  
*Period Obligations*  
01/09/1991-10/31/1993 FY93: \$55,000 TOTAL: \$165,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
A G CAMERON HQ/J A NUTH 19-Phys Sci, NEC

**NAGW 2494 Harvard University 4706**  
NAGW-2494/HARVARD UNIV/NEPTUNIAN MAGNETIC FIELD ANALYSIS  
*Period Obligations*  
06/03/1991-02/28/1993 FY93: \$0 TOTAL: \$82,016  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J BLOXHAM HQ/W L QUAIDE 19-Phys Sci, NEC

**NAGW 2570 Harvard University 4707**  
ABSOLUTE RADIOMETRIC CALIBRATION OF SOLAR EXTREME ULTRAVIOLET SPECTROMETERS  
*Period Obligations*  
07/01/1991-05/31/1994 FY93: \$84,476 TOTAL: \$297,931  
*Prin. Invest. NASA Tech. Officer CASE Category*  
W H PARKINSON HQ/W J WAGNER 13-Physics  
...../K LANG

**NAGW 2632 Harvard University 4708**  
THREE-DIMENSIONAL MODELING OF TROPOSPHERIC TRACE GASES  
*Period Obligations*  
08/22/1991-02/14/1992 FY93: \$194,000 TOTAL: \$582,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
M B MCELROY HQ/J A KAYE 31-Atmos Sci  
S C WOFSEY ...../R E MURPHY

**NAGW 2838 Harvard University 4709**  
CRYSTAL NUCLEATION, HYDROSTATIC TENSION AND DIFFUSION IN METAL AND SEMICONDUCTOR MELTS  
*Period Obligations*  
01/31/1992-03/31/1994 FY93: \$105,000 TOTAL: \$210,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
F A SPAEPEN HQ/B M CARPENTER 13-Physics  
D TURNBULL  
M J AZIZ

**NAGW 2858 Harvard University 4710**  
ISOTOPIC STUDIES OF THE ORIGIN OF THE SOLAR SYSTEM  
*Period Obligations*  
01/31/1992-10/31/1993 FY93: \$85,000 TOTAL: \$194,959  
*Prin. Invest. NASA Tech. Officer CASE Category*  
S B JACOBSEN HQ/J A NUTH 19-Phys Sci, NEC

**NAGW 2872 Harvard University 4711**  
WIDE-BAND WIDTH HIGH RESOLUTION SEARCH FOR EXTRATERRESTRIAL INTELLIGENCE  
*Period Obligations*  
02/14/1992-12/14/1993 FY93: \$100,450 TOTAL: \$200,930  
*Prin. Invest. NASA Tech. Officer CASE Category*  
P HOROWITZ HQ/J D RUMMEL 11-Astronomy

**NAGW 3000 Harvard University 4712**  
STUDIES OF MANTLE FLOW, CONVECTION AND GEOPHYSICAL OBSERVABLES  
*Period Obligations*  
03/13/1992-12/31/1993 FY93: \$62,290 TOTAL: \$122,484  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R J O'CONNELL HQ/R E MURPHY 32-Geological Sci  
...../D M BUTLER

**NAGW 3082 Harvard University 4713**  
DIRECT MEASUREMENTS OF ECOSYSTEM FLUXES OF CO<sub>2</sub> AND NO<sub>2</sub>  
*Period Obligations*  
05/15/1992-12/31/1993 FY93: \$270,000 TOTAL: \$530,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
S C WOFSEY HQ/A C JANETOS 39-Env Sci, NEC  
...../D E WICKLAND

**NAGW 3280 Harvard University 4714**  
NAGW-3280/HARVARD UNIV/COMPACT OBJECTS AND BINARIES IN GLOBULAR CLUSTERS AND THE GALAXY  
*Period Obligations*  
11/27/1992-09/30/1993 FY93: \$58,509 TOTAL: \$58,509  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J GRINDLAY HQ/G R RIEGLER 11-Astronomy

**NAGW 3467 Harvard University 4715**  
GEOMAGNETIC FIELD MODELS INCORPORATING PHYSICAL CONSTRAINTS ON THE SECULAR VARIATIONS  
*Period Obligations*  
04/09/1993-02/28/1994 FY93: \$65,000 TOTAL: \$65,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J BLOXHAM HQ/B F CHAO 32-Geological Sci  
...../R E MURPHY

**NASA'S UNIVERSITY PROGRAM  
MASSACHUSETTS (Continued)**

**NAGW 3509 Harvard University 4716**  
NAGW-3509/HARVARD UNIVERSITY/UNDERCOOLED MELTS: PR  
OPERTIES, SOLIDIFICATION AND METASTABLE PHASES  
*Period Obligations*  
04/06/1993-03/31/1994 FY93: \$12,500 TOTAL: \$12,500  
*Prin. Invest. NASA Tech. Officer CASE Category*  
F SPAEPEN HQ/M C LEE 13-Physics

**NAGW 3659 Harvard University 4717**  
INTERPRETING STROMATOLITES  
*Period Obligations*  
06/15/1993-06/30/1994 FY93: \$15,255 TOTAL: \$15,255  
*Prin. Invest. NASA Tech. Officer CASE Category*  
A H KNOLL HQ/J D RUMMEL 32-Geological Sci

**NAS 1-18946 Harvard University 4718**  
SAGE III SCIENCE SUPPORT; P.I. - WOFSY  
*Period Obligations*  
11/28/1989-01/31/1995 FY93: \$10,000 TOTAL: \$20,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
S C WOFSY LARC/G MADDREA 19-Phys Sci, NEC

**NAS 1-19955 Harvard University 4719**  
SAGE II SCIENTIFIC INVESTIGATIONS  
*Period Obligations*  
05/03/1993-05/02/1996 FY93: \$50,000 TOTAL: \$50,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
S C WOFSY LARC/G L MADDREA 31-Atmos Sci  
...../M P MCCORMICK

**NCC 2-457 Harvard University 4720**  
TEAM PERFORMANCE IN AERONAUTICAL AND SPACE ENVIRONS  
*Period Obligations*  
11/01/1987-08/31/1992 FY93: \$0 TOTAL: \$525,841  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J R HACKMAN ARC/H C FOUSHEE 62-Social Aspects  
R C GINNETT ...../B G KANKI

**NCC 2-628 Harvard University 4721**  
PROCESSES INVOLVED IN MICROBIAL BIOFILM FORMATION IN  
WATER RECLAMATION SYSTEMS FOR ORBITING SPACE...  
*Period Obligations*  
07/24/1989-02/28/1993 FY93: \$0 TOTAL: \$561,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R MITCHELL ARC/R D MACELROY 51-Biological Sci

**NCC 2-693 Harvard University 4722**  
DEVELOPMENT OF TECHNIQUES FOR THE IN SITU OBSERVA TION  
OF OH AND HO2 FOR STUDIES OF THE IMPACT ....  
*Period Obligations*  
10/09/1990-07/31/1993 FY93: \$375,000 TOTAL: \$1,097,456  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J G ANDERSON ARC/E P CONDON 31-Atmos Sci

**NCC 2-694 Harvard University 4723**  
DEVELOPMENT OF A HIGH-SENSITIVITY, FAST RESPONSE  
INSTRUMENT FOR IN SITU DETERMINATION OF CO2  
*Period Obligations*  
09/27/1990-01/31/1994 FY93: \$109,442 TOTAL: \$590,036  
*Prin. Invest. NASA Tech. Officer CASE Category*  
S C WOFSY ARC/E P CONDON 31-Atmos Sci  
D W TOOHEY

**NCC 2-786 Harvard University 4724**  
HIGH ALTITUDE NO AND NOY MEASUREMENTS USING A NEW LI  
GHTWEIGHT CHEMILUMINESCENCE INSTRUMENT  
*Period Obligations*  
04/02/1993-02/28/1994 FY93: \$178,327 TOTAL: \$178,327  
*Prin. Invest. NASA Tech. Officer CASE Category*  
S C WOFSY ARC/E CONDON 31-Atmos Sci

**NCC 2-790 Harvard University 4725**  
HIGH-ALTITUDE, TROPICAL LATITUDE C10,BRO,O3,P AND T  
OBSERVATIONS FROM THE PERSEUS FOR THE 1994 ASHOM..  
*Period Obligations*  
04/02/1993-02/28/1994 FY93: \$466,100 TOTAL: \$466,100  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J G ANDERSON ARC/E CONDON 31-Atmos Sci  
...../C DULLEN

**NCC 8-17 Harvard University 4726**  
THE IMPORTANCE OF MICROGONISMS IN DEGRADATION OF  
MATERIALS  
*Period Obligations*  
05/18/1990-05/31/1993 FY93: \$11 TOTAL: \$219,989  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R MITCHELL MSFC/E RODGERS 39-Env Sci, NEC  
T FORD

**NGT 00-030-027 Harvard University 4727**  
NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
10/31/1990-08/31/1993 FY93: \$0 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
T M DELSOLE HQ/G ASRAR 31-Atmos Sci

**NGT 00-030-031 Harvard University 4728**  
NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
10/31/1990-08/31/1993 FY93: \$0 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
S A LLOYD HQ/G ASRAR 31-Atmos Sci

**NGT 00-030-044 Harvard University 4729**  
NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
08/23/1991-08/31/1993 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
S L BASSOW HQ/D M BUTLER 39-Env Sci, NEC  
F A BAZZAZ ...../G S WILSON

**NGT 00-030-071 Harvard University 4730**  
NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
08/23/1991-08/31/1994 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
T TOOLAN HQ/D M BUTLER 33-Oceanography  
J MCCARTHY ...../G S WILSON

**NGT 00-030-080 Harvard University 4731**  
NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
08/23/1991-08/31/1993 FY93: \$0 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
L M AVALLONE HQ/D M BUTLER 31-Atmos Sci  
J G ANDERSON ...../G S WILSON

**NASA'S UNIVERSITY PROGRAM  
MASSACHUSETTS (Continued)**

**NGT 00-030-082 Harvard University 4732**  
NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
09/09/1991-08/31/1993 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
A E DESSLER HQ/D M BUTLER 31-Atmos Sci  
J G ANDERSON ....G S WILSON

**NGT 00-050-699 Harvard University 4740**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
08/12/1991-08/31/1994 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
I I SHAPIRO HQ/F C OWENS 13-Physics

**NGT 00-030-172 Harvard University 4733**  
NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
08/23/1993-08/31/1996 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D JACOB HQ/G ASRAR 31-Atmos Sci  
....D M BUTLER

**NGT 00-050-802 Harvard University 4741**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
06/25/1991-06/20/1994 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R KIRSHNER HQ/F C OWENS 11-Astronomy

**NGT 00-030-182 Harvard University 4734**  
NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
09/02/1993-08/31/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
M S MCELROY HQ/G ASRAR 99-Multi-Discip  
....D M BUTLER

**NGT 00-050-814 Harvard University 4742**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
08/16/1991-08/31/1993 FY93: \$0 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
M J GELLER HQ/J ALEXANDER 11-Astronomy

**NGT 00-030-184 Harvard University 4735**  
NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
09/02/1993-08/31/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D JACOB HQ/G ASRAR 31-Atmos Sci  
....D M BUTLER

**NGT 00-050-819 Harvard University 4743**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
07/10/1990-09/30/1993 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J P HOUCHEA HQ/F C OWENS 11-Astronomy

**NGT 00-030-195 Harvard University 4736**  
NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
09/01/1993-08/31/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
F A BAZZAZ HQ/G ASRAR 39-Env Sci, NEC  
....D M BUTLER

**NGT 00-050-851 Harvard University 4744**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
08/16/1991-08/31/1994 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
F K THIELEMANN HQ/F C OWENS 11-Astronomy

**NGT 00-050-615 Harvard University 4737**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
07/02/1990-06/30/1992 FY93: \$0 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J BLOXHAM HQ/F C OWENS 33-Oceanography

**NGT 00-050-874 Harvard University 4745**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
05/15/1992-06/30/1994 FY93: \$22,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D INGBER JSC/S GOLDSTEIN 56-Medical Sciences

**NGT 00-050-663 Harvard University 4738**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
09/13/1990-08/31/1992 FY93: \$0 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
I I SHAPIRO HQ/F C OWENS 11-Astronomy

**NGT 00-050-942 Harvard University 4746**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
07/24/1992-06/30/1994 FY93: \$22,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
A R BARRON LERC/F MONTEGANI 12-Chemistry

**NGT 00-050-667 Harvard University 4739**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
11/05/1990-10/31/1992 FY93: \$0 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
M J GELLER HQ/F C OWENS 11-Astronomy

**NGT 00-050-994 Harvard University 4747**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
08/11/1992-08/31/1994 FY93: \$22,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J E GRINDLAY HQ/J K ALEXANDER 11-Astronomy

**NASA'S UNIVERSITY PROGRAM  
MASSACHUSETTS (Continued)**

**NGT 00-050-999 Harvard University 4748**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
08/28/1992-08/31/1994 FY93: \$22,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J E GRINDLAY HQ/J K ALEXANDER 13-Physics

**NGT 00-051-002 Harvard University 4749**  
NGT-51002/HARVARD UNIV/GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
08/14/1992-08/31/1993 FY93: \$0 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R P KIRSHNER HQ/J K ALEXANDER 11-Astronomy

**NGT 00-051-081 Harvard University 4750**  
GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
06/09/1993-06/30/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R KIRSHNER HQ/J LYNCH 11-Astronomy

**NGT 00-051-093 Harvard University 4751**  
GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
05/27/1993-06/30/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R P KIRSHNER HQ/D HOLLAND 13-Physics

**NGT 00-090-172 Harvard University 4752**  
UNDERGRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
08/27/1993-08/14/1994 FY93: \$12,000 TOTAL: \$12,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
M HOMER HQ/D K RUSSELL 99-Multi-Discip

**NAG 1-126 Massachusetts Institute of Technology 4753**  
RELIABILITY ISSUES IN ACTIVE CONTROL OF LARGE FLEXIBLE SPACE STRUCTURES  
*Period Obligations*  
11/14/1980-05/31/1993 FY93: \$0 TOTAL: \$985,049  
*Prin. Invest. NASA Tech. Officer CASE Category*  
W E VANDERVELDE LARC/R C MONTGOMERY 41-Aero Engr  
B WALKER ....S S WELCH

**NAG 1-690 Massachusetts Institute of Technology 4754**  
FLIGHT RESEARCH ACTIVITIES  
*Period Obligations*  
07/02/1986-07/15/1993 FY93: \$0 TOTAL: \$30,957  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R J HANSMAN LARC/C C LEE 41-Aero Engr  
....H D CARDEN

**NAG 1-801 Massachusetts Institute of Technology 4755**  
THE DYNAMIC CONTROL OF ROBOTIC MANIPULATORS IN SPACE  
*Period Obligations*  
08/17/1987-01/31/1994 FY93: \$135,300 TOTAL: \$1,649,308  
*Prin. Invest. NASA Tech. Officer CASE Category*  
S DUBOWSKY LARC/J KOLAROV 49-Engr, NEC  
....J E PENNINGTON

**NAG 1-924 Massachusetts Institute of Technology 4756**  
SOLID STATE LASER MATERIALS  
*Period Obligations*  
11/15/1988-04/30/1993 FY93: \$0 TOTAL: \$222,288  
*Prin. Invest. NASA Tech. Officer CASE Category*  
H P JENSSEN LARC/R V HESS 13-Physics  
....P BROCKMAN

**NAG 1-968 Massachusetts Institute of Technology 4757**  
SPACECRAFT DYNAMICS CHARACTERIZATION AND THE EFFECTS OF NONLINEAR JOINTS  
*Period Obligations*  
02/14/1989-02/08/1992 FY93: \$1 TOTAL: \$289,798  
*Prin. Invest. NASA Tech. Officer CASE Category*  
W E VANDER VELDE LARC/R S TAYLOR 42-Astro Engr  
....D W SPARKS

**NAG 1-991 Massachusetts Institute of Technology 4758**  
COMPOSITE FUSELAGE TECHNOLOGY  
*Period Obligations*  
04/10/1989-04/06/1994 FY93: \$112,342 TOTAL: \$542,154  
*Prin. Invest. NASA Tech. Officer CASE Category*  
P A LAGACE LARC/J H STARNES 41-Aero Engr  
M J GRAVES ....M J SHUART

**NAG 1-996 Massachusetts Institute of Technology 4759**  
GROWTH AND CHARACTERIZATION OF HIGH PERFORMANCE PHOTOREFRACTIVE CRYSTALS  
*Period Obligations*  
05/23/1989-03/31/1992 FY93: \$1 TOTAL: \$349,483  
*Prin. Invest. NASA Tech. Officer CASE Category*  
C WARDE LARC/S WELCH 13-Physics  
....R C MONTGOMERY

**NAG 1-1088 Massachusetts Institute of Technology 4760**  
DESIGN OF HIGH PERFORMANCE MULTIVARIABLE CONTROL SYSTEMS FOR SUPERMANEUVERABLE AIRCRAFT AT HIGH  
*Period Obligations*  
01/18/1990-01/16/1993 FY93: \$18,667 TOTAL: \$115,157  
*Prin. Invest. NASA Tech. Officer CASE Category*  
L VALAVANI LARC/B J BACON 41-Aero Engr

**NAG 1-1252 Massachusetts Institute of Technology 4761**  
METEOROLOGICAL ANALYSIS OF PACIFIC EXPLORATORY MISSION-WEST (PEM-WEST)  
*Period Obligations*  
04/15/1991-03/31/1995 FY93: \$222,730 TOTAL: \$708,373  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R E NEWELL LARC/J M HOELL 31-Atmos Sci  
....M C SHIPHAM

**NAG 1-1299 Massachusetts Institute of Technology 4762**  
CONTROL OF HELICOPTER ROTOR AERODYNAMICS WITH BLADE-MOUNTED PIEZOELECTRIC ACTUATORS  
*Period Obligations*  
07/12/1991-10/31/1993 FY93: \$72,410 TOTAL: \$132,022  
*Prin. Invest. NASA Tech. Officer CASE Category*  
S R HALL LARC/J D BERRY 41-Aero Engr  
....J C WILSON

**NASA'S UNIVERSITY PROGRAM  
MASSACHUSETTS (Continued)**

**NAG 1-1360 Massachusetts Institute of Technology 4763**  
AIR PARCEL TRAJECTORIES - LOWER STRATOSPHERE USING  
WINDS FROM THE 'SKIHI' GENERAL CIRCULATION MODEL  
*Period* *Obligations*  
12/17/1991-06/10/1993 FY93: \$0 TOTAL: \$110,628  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R A PLUMB LARC/R E TURNER 31-Atmos Sci  
J D MAHLMAN ....W T BLACKSHEAR

**NAG 1-1463 Massachusetts Institute of Technology 4764**  
PREDICTION OF THERMAL CYCLING INDUCED CRACKING IN  
POLYMER MATRIX COMPOSITES - MY 1/3  
*Period* *Obligations*  
01/29/1993-01/31/1994 FY93: \$40,500 TOTAL: \$40,500  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
H L MCMANUS LARC/D E BOWLES 47-Materials Engr  
....S S THOMPkins

**NAG 1-1511 Massachusetts Institute of Technology 4765**  
COMPRESSIBLE MIXING AND NOISE GENERATION DOWNSTREAM  
OF LOBED MIXERS  
*Period* *Obligations*  
06/25/1993-06/27/1994 FY93: \$134,125 TOTAL: \$134,125  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
I A WAITZ LARC/J M SEINER 41-Aero Engr  
F M GREITZER ....M K PONTON  
C S TAN

**NAG 1-1512 Massachusetts Institute of Technology 4766**  
SUCTION AND BLOWING STRATEGIES FOR REDUCTION OF FAN  
NOISE  
*Period* *Obligations*  
06/25/1993-09/30/1993 FY93: \$53,542 TOTAL: \$53,542  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
I A WAITZ LARC/C H GERHOLD 41-Aero Engr  
K U INGARD  
A H EPSTEIN

**NAG 1-1519 Massachusetts Institute of Technology 4767**  
NONLINEAR GEOMETRICAL ACOUSTICS NLPN 93-503  
*Period* *Obligations*  
07/12/1993-07/31/1994 FY93: \$44,761 TOTAL: \$44,761  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R R ROSALES LARC/K R MEADOWS 41-Aero Engr

**NAG 1-1525 Massachusetts Institute of Technology 4768**  
PROBLEMS IN SUPERSONIC BOUNDARY LAYER STABILITY  
*Period* *Obligations*  
06/30/1993-09/30/1993 FY93: \$9,669 TOTAL: \$9,669  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
K S BREYER LARC/S K ROBINSON 41-Aero Engr

**NAG 1-1531 Massachusetts Institute of Technology 4769**  
ANALYSIS OF NOISE MINIMAL APPROACH AND DEPARTURE  
PROCEDURES USING ADVANCED FLIGHT GUIDANCE TECHNIQU  
*Period* *Obligations*  
08/30/1993-08/31/1994 FY93: \$99,681 TOTAL: \$99,681  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R J HANSMAN JR. LARC/C A POWELL 41-Aero Engr  
....K P SHEPHERD

**NAG 2-445 Massachusetts Institute of Technology 4770**  
RESEARCH ON VISUAL VESTIBULAR INTERACTION  
*Period* *Obligations*  
01/01/1987-09/30/1993 FY93: \$75,024 TOTAL: \$634,914  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
L R YOUNG ARC/M M COHEN 51-Biological Sci  
C OMAN ....M L CORCORAN

**NAG 2-632 Massachusetts Institute of Technology 4771**  
LABORATORY STUDIES OF STRATOSPHERIC AEROSOL CHEMI  
STRY  
*Period* *Obligations*  
05/02/1990-12/31/1993 FY93: \$210,000 TOTAL: \$647,240  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
M J MOLINA ARC/E CONDON 31-Atmos Sci  
....B TOON

**NAG 2-693 Massachusetts Institute of Technology 4772**  
DEVELOPMENT OF A11-NB SIS DIRECTOR DETECTORS  
*Period* *Obligations*  
02/28/1991-02/28/1994 FY93: \$50,000 TOTAL: \$174,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
Q HU ARC/C R MCCREIGHT 13-Physics  
....R E MCMURRAY

**NAG 2-716 Massachusetts Institute of Technology 4773**  
SITUATIONAL AWARENESS ISSUES IN THE IMPLEMENTATIO N OF  
DATALINK  
*Period* *Obligations*  
06/26/1991-08/31/1993 FY93: \$95,000 TOTAL: \$203,025  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R J HANSMAN ARC/K CORKER 49-Engr, NEC

**NAG 2-729 Massachusetts Institute of Technology 4774**  
MODELING INFORMATION PROCESSING IN FLIGHT MANAGEM ENT  
*Period* *Obligations*  
08/27/1991-09/30/1993 FY93: \$140,000 TOTAL: \$230,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
T B SHERIDAN ARC/K M CORKER 69-Psych, NEC  
....E J HARTZELL

**NAG 2-754 Massachusetts Institute of Technology 4775**  
DOES PLUTO HAVE A HAZE LAYER?  
*Period* *Obligations*  
02/12/1992-12/31/1992 FY93: \$0 TOTAL: \$41,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J L ELLIOT ARC/C D LAUGHLIN 11-Astronomy  
....C M GILLESPIE

**NAG 2-853 Massachusetts Institute of Technology 4776**  
CONFLUENT WAKE/BOUNDARY-LAYER METHOD FOR HIGH-LIFT  
AIRFOIL FLOW PREDICTION  
*Period* *Obligations*  
06/30/1993-09/30/1993 FY93: \$30,769 TOTAL: \$30,769  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
M DRELA ARC/L L ERIKSON 41-Aero Engr

**NAG 2-855 Massachusetts Institute of Technology 4777**  
ARCHIVING OF PLANETARY RING DATA  
*Period* *Obligations*  
07/16/1993-06/30/1994 FY93: \$12,000 TOTAL: \$12,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J L ELLIOT ARC/J N CUZZI 11-Astronomy

**NASA'S UNIVERSITY PROGRAM  
MASSACHUSETTS (Continued)**

**NAG 3-660 Massachusetts Institute of Technology 4778**  
DIRECT SIMULATION OF 3-D FLUID MECHANICAL PHENOMENA IN  
INTERNAL FLOWS

Period	Obligations	
11/08/1985-09/30/1993	FY93: \$88,534	TOTAL: \$428,072
Prin. Invest.	NASA Tech. Officer	CASE Category
E E COVERT	LERC/J J ADAMCZYK	41-Aero Engr
C S TAN		

**NAG 3-927 Massachusetts Institute of Technology 4785**  
ADV ICE DETECTION TECH FOR HELICOPTER AND AIRCRAFT  
APPL

Period	Obligations	
09/08/1988-12/31/1992	FY93: \$0	TOTAL: \$99,651
Prin. Invest.	NASA Tech. Officer	CASE Category
R J HANSMAN	LERC/J J REINMANN	41-Aero Engr

**NAG 3-666 Massachusetts Institute of Technology 4779**  
QUANTITATIVE STUDIES OF ICE ACCRETION UTILIZING ULTRASONIC  
MEASUREMENT TECHNIQUES

Period	Obligations	
11/08/1985-01/28/1994	FY93: \$55,000	TOTAL: \$342,669
Prin. Invest.	NASA Tech. Officer	CASE Category
R J HANSMAN	LERC/M G POTAPCZUK	41-Aero Engr

**NAG 3-953 Massachusetts Institute of Technology 4786**  
INLET DISTORTION IN ENGINES ON VSTOL AIRCRAFT

Period	Obligations	
12/20/1988-12/31/1993	FY93: \$153,468	TOTAL: \$402,190
Prin. Invest.	NASA Tech. Officer	CASE Category
C S TAN	LERC/C DRUMMOND	41-Aero Engr
E M GREITZER	.... /F A NEWMAN	

**NAG 3-695 Massachusetts Institute of Technology 4780**  
INVESTIGATION OF INTERACTION BETWEEN AC POWER LINES AND  
SPACE PLASMAS

Period	Obligations	
02/06/1986-02/23/1994	FY93: \$50,000	TOTAL: \$419,297
Prin. Invest.	NASA Tech. Officer	CASE Category
D E HASTINGS	LERC/D B SNYDER	19-Phys Sci, NEC
S OLBERT		

**NAG 3-1013 Massachusetts Institute of Technology 4787**  
STATE VARIABLE MEASUREMENT IN HIGH SPEED TURBOMACH  
INERY

Period	Obligations	
02/28/1989-02/23/1994	FY93: \$120,318	TOTAL: \$769,281
Prin. Invest.	NASA Tech. Officer	CASE Category
A H EPSTEIN	LERC/A J STRAZISAR	41-Aero Engr

**NAG 3-770 Massachusetts Institute of Technology 4781**  
ACTIVE STABILIZATION OF CENTRIFUGAL COMPRESSORS

Period	Obligations	
12/29/1986-02/28/1992	FY93: \$638	TOTAL: \$427,731
Prin. Invest.	NASA Tech. Officer	CASE Category
A H EPSTEIN	LERC/L F SCHUMANN	41-Aero Engr
E M GREITZER		

**NAG 3-1076 Massachusetts Institute of Technology 4788**  
HEAT TRANSFER WITH COMBINED OSCILLATING PRESSURE AND  
OSCILLATING FLOW

Period	Obligations	
09/29/1989-08/08/1993	FY93: \$0	TOTAL: \$225,877
Prin. Invest.	NASA Tech. Officer	CASE Category
J L SMITH	LERC/R C TEW	46-Mech Engr
	.... /K E DUDENHOESER	

**NAG 3-772 Massachusetts Institute of Technology 4782**  
3-D FLOW IN RADIAL TURBOMACHINERY AND ITS IMPACT ON  
DESIGN

Period	Obligations	
12/29/1986-10/31/1992	FY93: \$0	TOTAL: \$432,993
Prin. Invest.	NASA Tech. Officer	CASE Category
G S TAN	LERC/P L MEITNER	41-Aero Engr
W HAWTHORNE	.... /K C CIVINSKES	

**NAG 3-1105 Massachusetts Institute of Technology 4789**  
COMPOSITES INTERPHASE CHARACTERIZATION BY ACOUSTO-  
ULTRASONIC NDE TECHNIQUES

Period	Obligations	
01/08/1990-12/31/1993	FY93: \$20,000	TOTAL: \$107,415
Prin. Invest.	NASA Tech. Officer	CASE Category
J H WILLIAMS	LERC/H E KAUTZ	47-Materials Engr
	.... /A VARY	

**NAG 3-844 Massachusetts Institute of Technology 4783**  
UNSTEADY FLOW TURBOMACHINES

Period	Obligations	
12/04/1987-12/31/1993	FY93: \$0	TOTAL: \$49,077
Prin. Invest.	NASA Tech. Officer	CASE Category
E M GREITZER	LERC/J J ADAMCZYK	41-Aero Engr

**NAG 3-1176 Massachusetts Institute of Technology 4790**  
UNSTEADY THREE-DIMENSIONAL FLOW IN MARINE PROPULSO RS

Period	Obligations	
05/01/1990-12/31/1993	FY93: \$0	TOTAL: \$100,016
Prin. Invest.	NASA Tech. Officer	CASE Category
C S TAN	LERC/J J ADAMCZYK	41-Aero Engr

**NAG 3-845 Massachusetts Institute of Technology 4784**  
NITRIDING KINETICS INTERFACE PROPERTIES IN SILICON CARBIDE  
REINFORCED REACT. BONDED SILICON NITRIDE

Period	Obligations	
12/16/1987-02/24/1993	FY93: \$414	TOTAL: \$346,143
Prin. Invest.	NASA Tech. Officer	CASE Category
J S HAGGERTY	LERC/R T BHATT	47-Materials Engr

**NAG 3-1214 Massachusetts Institute of Technology 4791**  
INFLUENCE OF INLET TEMPERATURE DISTORTION ON TURBI NE  
HEAT TRANSFER AND AERODYNAMICS

Period	Obligations	
11/02/1990-10/18/1993	FY93: \$89,286	TOTAL: \$250,985
Prin. Invest.	NASA Tech. Officer	CASE Category
A H EPSTEIN	LERC/J D HEIDMANN	41-Aero Engr
G R GUENETTE		

**NASA'S UNIVERSITY PROGRAM  
MASSACHUSETTS (Continued)**

**NAG 3-1237 Massachusetts Institute of Technology 4792**  
VORT STRUCT IN COMPRESSOR ENDWALL FLOWFIELDS: BASI C  
FLUID MECH AND IMPACT ON PERFORMANCE AND STABILITY

Period	Obligations	
03/14/1991-10/31/1993	FY93: \$90,222	TOTAL: \$229,132
Prin. Invest.	NASA Tech. Officer	CASE Category
E M GREITZER	LERC/G J SKOCH	41-Aero Engr

**NAG 3-1510 Massachusetts Institute of Technology 4799**  
MODELING AND ANALYSIS OF POWER SYSTEMS FOR SPACE APP  
LICATIONS

Period	Obligations	
07/19/1993-07/06/1994	FY93: \$40,283	TOTAL: \$40,283
Prin. Invest.	NASA Tech. Officer	CASE Category
S D UMANS	LERC/M D KANKAM	45-Elec Engr

**NAG 3-1344 Massachusetts Institute of Technology 4793**  
FLOW STABILITY IN PEBBLE-BED REACTORS

Period	Obligations	
04/16/1992-04/14/1993	FY93: \$0	TOTAL: \$50,000
Prin. Invest.	NASA Tech. Officer	CASE Category
J L KERREBROCK	LERC/J T WALTON	49-Engr, NEC
	....J S CLARK	

**NAG 3-1513 Massachusetts Institute of Technology 4800**  
EFFECTS OF FLOW UNSTEADINESS ON MULTISTAGE COMPRES  
SOR PERFORMANCE

Period	Obligations	
08/06/1993-10/27/1993	FY93: \$39,575	TOTAL: \$39,575
Prin. Invest.	NASA Tech. Officer	CASE Category
E M GREITZER	LERC/A J STRAZISAR	41-Aero Engr
F E MARBLE		
N A CUMPSTY		

**NAG 3-1364 Massachusetts Institute of Technology 4794**  
LOBED MIXER OPTIMIZATION FOR ADVANCED EJECTOR GEOM  
ETRIES

Period	Obligations	
08/17/1992-01/14/1994	FY93: \$135,060	TOTAL: \$171,574
Prin. Invest.	NASA Tech. Officer	CASE Category
I A WAITZ	LERC/C K DRUMMOND	41-Aero Engr
E M GREITZER	....J R DEBONIS	
C S TAN		

**NAG 5-10 Massachusetts Institute of Technology 4801**  
IMPROVED MICROWAVE RETRIEVAL TECHNIQUES FOR  
ATMOSPHERIC TEMPERATURES, WIND, AND HUMIDITY

Period	Obligations	
02/01/1980-01/14/1994	FY93: \$125,000	TOTAL: \$1,986,600
Prin. Invest.	NASA Tech. Officer	CASE Category
D H STAELIN	GSFC/J C SHIUE	31-Atmos Sci
P W ROSENANZ	....J R WANG	

**NAG 3-1407 Massachusetts Institute of Technology 4795**  
OPTIMIZATION OF REGENERATOR-MATRIX PERFORMANCE AND D  
ESIGN

Period	Obligations	
05/20/1993-12/31/1993	FY93: \$30,675	TOTAL: \$30,675
Prin. Invest.	NASA Tech. Officer	CASE Category
D G WILSON	LERC/P T KERWIN	46-Mech Engr
D S BECK		

**NAG 5-584 Massachusetts Institute of Technology 4802**  
ANALYSIS OF THE SOLAR WIND EXPERIMENT - IMP-8

Period	Obligations	
10/01/1985-09/30/1993	FY93: \$150,000	TOTAL: \$769,499
Prin. Invest.	NASA Tech. Officer	CASE Category
A J LAZARUS	GSFC/G BULLOCK	11-Astronomy

**NAG 3-1443 Massachusetts Institute of Technology 4796**  
ICING PREDICTION ON MULTI-ELEMENT AIRFOILS

Period	Obligations	
02/10/1993-01/28/1994	FY93: \$55,000	TOTAL: \$55,000
Prin. Invest.	NASA Tech. Officer	CASE Category
M DRELA	LERC/M G POTAPCZUK	41-Aero Engr

**NAG 5-743 Massachusetts Institute of Technology 4803**  
EXTENSIONS AND TESTING THE HYDROLOGICAL  
PARAMETARGATION OF THE ATMOSPHERIC GENRAL CIRCULATION  
MODEL

Period	Obligations	
03/01/1986-08/31/1993	FY93: \$0	TOTAL: \$484,453
Prin. Invest.	NASA Tech. Officer	CASE Category
P S EAGLESON	GSFC/A D GENIO	31-Atmos Sci

**NAG 3-1448 Massachusetts Institute of Technology 4797**  
MODELLING OF THE T-55 COMPRESSOR STABILITY

Period	Obligations	
02/10/1993-12/31/1993	FY93: \$45,560	TOTAL: \$45,560
Prin. Invest.	NASA Tech. Officer	CASE Category
A H EPSTEIN	LERC/C K DRUMMOND	41-Aero Engr
G J HENDRICKS		

**NAG 5-927 Massachusetts Institute of Technology 4804**  
TIME EVALUATION OF PERSISTANT ANOMALIES MECHANISMS AND  
RELATIONSHIPS TO VARIATIONS IN EDDY ACTIVITY C

Period	Obligations	
06/15/1987-05/14/1992	FY93: \$0	TOTAL: \$393,710
Prin. Invest.	NASA Tech. Officer	CASE Category
P H STONE	GSFC/R ATLAS	31-Atmos Sci

**NAG 3-1457 Massachusetts Institute of Technology 4798**  
IDENTIFICATION AND CONTROL OF ROTATING STALL MODES IN  
THE ADVANCED DUCTED PROPULSOR

Period	Obligations	
02/23/1993-01/31/1994	FY93: \$173,736	TOTAL: \$173,736
Prin. Invest.	NASA Tech. Officer	CASE Category
J D PADUANO	LERC/M M BRIGHT	46-Mech Engr

**NAG 5-1055 Massachusetts Institute of Technology 4805**  
GENERATION OF ARTIFICIAL PLASMA LAYERS BY 2 MICROWAVE  
BEAMS VIA AIR BREAKDOWN

Period	Obligations	
06/15/1988-09/14/1993	FY93: \$15,000	TOTAL: \$291,900
Prin. Invest.	NASA Tech. Officer	CASE Category
M C LEE	GSFC/R F BENSON	13-Physics



**NASA'S UNIVERSITY PROGRAM  
MASSACHUSETTS (Continued)**

**NAG 5-1314 Massachusetts Institute of Technology 4806**  
SCIENCE ANALYSIS FROM COBE DATA  
*Period* *Obligations*  
12/07/1989-12/31/1993 FY93: \$374,694 TOTAL: \$1,131,979  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R WEISS GSFC/J MATHER 11-Astronomy

**NAG 5-1328 Massachusetts Institute of Technology 4807**  
INTERANNUAL VARIABILITY OF THE GLOBAL CARBON AND ENERGY  
*Period* *Obligations*  
02/05/1990-01/14/1994 FY93: \$52,300 TOTAL: \$195,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
P H STONE GSFC/D RIND 31-Atmos Sci

**NAG 5-1355 Massachusetts Institute of Technology 4808**  
COMPARISON OF SIMULATIONS WITH X-RAY OPTICAL OBSERVATION  
*Period* *Obligations*  
04/17/1990-08/31/1992 FY93: \$0 TOTAL: \$51,658  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
E BERTSCHINGER GSFC/D WEST 11-Astronomy

**NAG 5-1441 Massachusetts Institute of Technology 4809**  
DEEP SURVEY OF A LARGE GALAXY (M31)  
*Period* *Obligations*  
08/21/1990-01/14/1992 FY93: \$2,472 TOTAL: \$76,249  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
W LEWIN GSFC/R PETRE 11-Astronomy

**NAG 5-1498 Massachusetts Institute of Technology 4810**  
RESEARCH RELATIVE TO ROSAT GALACTIC PLANE SURVEY  
*Period* *Obligations*  
04/02/1991-04/14/1994 FY93: \$0 TOTAL: \$15,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
H BRADT GSFC/R PETRE 11-Astronomy

**NAG 5-1570 Massachusetts Institute of Technology 4811**  
STUDIES OF GAMMA RAYS FROM AGN'S  
*Period* *Obligations*  
05/11/1991-12/14/1992 FY93: \$0 TOTAL: \$60,055  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
A P LIGHTMAN GSFC/J P NORRIS 11-Astronomy  
...../D A KNIFFEN

**NAG 5-1615 Massachusetts Institute of Technology 4812**  
MODEL OF THE TROPICAL ATMOSPHERE FOR ALGORITHM DEVELOPMENT AND TESTING  
*Period* *Obligations*  
05/24/1991-12/14/1993 FY93: \$100,000 TOTAL: \$343,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R L BRAS GSFC/D SHORT 31-Atmos Sci

**NAG 5-1625 Massachusetts Institute of Technology 4813**  
ROSAT STUDY OF THE ECLIPSES AND ROATION OF THE UNI QUE AM HER OBJECT HO538+608  
*Period* *Obligations*  
06/07/1991-06/14/1994 FY93: \$0 TOTAL: \$22,384  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
A M LEVINE GSFC/R PETRE 11-Astronomy

**NAG 5-1656 Massachusetts Institute of Technology 4814**  
STUDY OF WIND OF THE COMPANION OF SMC X-1 BY X-RAY MEASUREMENTS DURING ECLIPSE AND OF SHAPES OF GALAXY  
*Period* *Obligations*  
06/24/1991-10/30/1993 FY93: \$19,999 TOTAL: \$97,999  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
G W CLARK GSFC/R PETRE 11-Astronomy  
C R CANIZARES

**NAG 5-1682 Massachusetts Institute of Technology 4815**  
SEARCH FOR A QUIESCENT X-RAY COUNTERPART TO THE GA MMA-RAY BURST SOURCE; SEARCH FOR QUIESCENT X-RAY.  
*Period* *Obligations*  
07/15/1991-07/14/1994 FY93: \$0 TOTAL: \$33,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
G R RICKER GSFC/R PETRE 11-Astronomy

**NAG 5-1686 Massachusetts Institute of Technology 4816**  
MANTLE DYNAMICS AND GEODESY  
*Period* *Obligations*  
07/15/1991-07/14/1993 FY93: \$0 TOTAL: \$110,700  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R HAGER GSFC/J E WELKER 32-Geological Sci

**NAG 5-1723 Massachusetts Institute of Technology 4817**  
ARCHIVAL RESEARCH IN LOW-MASS X-RAY BINARIES  
*Period* *Obligations*  
08/01/1991-07/31/1992 FY93: \$0 TOTAL: \$30,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
W H LEWIN GSFC/D WEST 11-Astronomy

**NAG 5-1784 Massachusetts Institute of Technology 4818**  
IDENTIFICATIONS OF X-RAY SOURCES FROM THE ROSAT GALACTIC PLANE SURVEY  
*Period* *Obligations*  
10/15/1991-10/14/1993 FY93: \$0 TOTAL: \$38,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R A REMILLARD GSFC/R PETRE 11-Astronomy

**NAG 5-1821 Massachusetts Institute of Technology 4819**  
BROAD-BAND X-RAY SPECTRA OF BRIGHT X-RAY BINARIES  
*Period* *Obligations*  
11/06/1991-11/14/1992 FY93: \$0 TOTAL: \$18,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
W H LEWIN GSFC/R PETRE 11-Astronomy

**NAG 5-1826 Massachusetts Institute of Technology 4820**  
CONTEMPORANEOUS ROSAT/GINGA OBSERVATIONS OF X-RAY DIP SOURCES  
*Period* *Obligations*  
11/13/1991-11/14/1993 FY93: \$49,000 TOTAL: \$64,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
W H LEWIN GSFC/R PETRE 11-Astronomy

**NASA'S UNIVERSITY PROGRAM  
MASSACHUSETTS (Continued)**

**NAG 5-1865 Massachusetts Institute of Technology 4821**  
X-RAY IMAGING OF C1 1358+62, A DISTANT, X-RAY SELE CTED  
CLUSTER OF GALAXIES

Period	Obligations	
01/22/1992-02/14/1994	FY93: \$0	TOTAL: \$34,905
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
C R CANIZARES	GSFC/R PETRE	11-Astronomy

**NAG 5-1905 Massachusetts Institute of Technology 4822**  
STRATEGIES FOR SPACE GEODETIC MONITORING OF INFRAS  
EISMIC AND SUBSEISMIC TRANSIENT DEFORMATIONS

Period	Obligations	
02/20/1992-02/28/1994	FY93: \$51,000	TOTAL: \$97,870
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
T H JORDAN	GSFC/B G BILLS	32-Geological Sci

**NAG 5-1906 Massachusetts Institute of Technology 4823**  
STUDIES OF ERROR SOURCES IN GEODETIC VLBI

Period	Obligations	
02/21/1992-02/28/1994	FY93: \$61,000	TOTAL: \$119,637
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
A E ROGERS	GSFC/B G BILLS	32-Geological Sci

**NAG 5-1911 Massachusetts Institute of Technology 4824**  
CRUSTAL DEFORMATION FROM SURFACE AND INTERNAL LOAD S

Period	Obligations	
02/26/1992-02/28/1994	FY93: \$84,000	TOTAL: \$134,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
B H HAGER	GSFC/B G BILLS	32-Geological Sci

**NAG 5-1921 Massachusetts Institute of Technology 4825**  
LITHOSPHERIC DYNAMICS NEAR PLATE BOUNDARIES

Period	Obligations	
03/04/1992-05/14/1993	FY93: \$1,138	TOTAL: \$78,862
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
S C SOLOMAN	GSFC/B G BILLS	32-Geological Sci

**NAG 5-1947 Massachusetts Institute of Technology 4826**  
GPS SURVEY OF THE WESTERN TIEN SHAN PROPOSAL

Period	Obligations	
03/16/1992-03/14/1994	FY93: \$70,000	TOTAL: \$115,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
P MOLNAR	GSFC/B G BILLS	31-Atmos Sci

**NAG 5-1951 Massachusetts Institute of Technology 4827**  
SPECTRA OF HIGH REDSHIFT RADIO QUIET QUASARS

Period	Obligations	
03/18/1992-03/31/1994	FY93: \$0	TOTAL: \$30,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
C R CANIZARES	GSFC/R PETRE	11-Astronomy

**NAG 5-1983 Massachusetts Institute of Technology 4828**  
ROSAT STUDIES OF GLOBULAR CLUSTER X-RAY SOURCES

Period	Obligations	
05/12/1992-05/31/1994	FY93: \$10,000	TOTAL: \$30,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
	GSFC/R PETRE	11-Astronomy

**NAG 5-1993 Massachusetts Institute of Technology 4829**  
SEARCH FOR CHAOS IN THE RAPID BURSTER

Period	Obligations	
06/12/1992-06/14/1994	FY93: \$0	TOTAL: \$31,938
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
S RAPPAPORT	GSFC/D WEST	11-Astronomy

**NAG 5-2030 Massachusetts Institute of Technology 4830**  
SEARCH FOR SOFT GAMMA-RAY EVENTS (25-55 KEV)IN THE  
BATSE

Period	Obligations	
07/08/1992-01/14/1994	FY93: \$36,000	TOTAL: \$60,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
W H LEWIN	GSFC/J P NORRIS	11-Astronomy
J VANPARADIJS	..../N WHITE	

**NAG 5-2046 Massachusetts Institute of Technology 4831**  
PULSE TIMING OF VELA X-1

Period	Obligations	
07/28/1992-09/30/1993	FY93: \$0	TOTAL: \$10,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
W H LEWIN	GSFC/J P NORRIS	11-Astronomy
M VAN DER KLIS	..../N WHITE	

**NAG 5-2165 Massachusetts Institute of Technology 4832**  
ACCURATE, SIMULTANEOUS GAMMA RAY BURST POSITION DE  
TERMINATION USING THE BURST AND TRANSIENT. . . .

Period	Obligations	
12/31/1992-12/31/1993	FY93: \$50,000	TOTAL: \$50,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
G R RICKER	GSFC/J P NORRIS	11-Astronomy
	..../N WHITE	

**NAG 5-2185 Massachusetts Institute of Technology 4833**  
PARTICIPATION IN THE MARS OBSERVER LASER ALTIMETER (MOLA)  
TEAM

Period	Obligations	
02/09/1993-02/14/1994	FY93: \$59,935	TOTAL: \$59,935
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
G H PETTENGILL	GSFC/D E SMITH	11-Astronomy

**NAG 5-2230 Massachusetts Institute of Technology 4834**  
A STUDY OF 4 SUPERNOVA REMNANT-RICH FIELDS IN THE CARINA  
SPIRAL ARM

Period	Obligations	
03/23/1993-09/30/1994	FY93: \$20,000	TOTAL: \$20,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
T H MARKERT	GSFC/R PETRE	11-Astronomy

**NAG 5-2255 Massachusetts Institute of Technology 4835**  
MICRO/MESOSCALE PHENOMENA OF CHARGED PARTICLE ENER  
GIZATION, DIFFUSION AND TRANSPORT

Period	Obligations	
04/27/1993-04/30/1994	FY93: \$140,119	TOTAL: \$140,119
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
T CHANG	GSFC/T J BIRMINGHAM	13-Physics
	..../J D BOHLIN	



**NASA'S UNIVERSITY PROGRAM  
MASSACHUSETTS (Continued)**

**NAG 8-962 Massachusetts Institute of Technology 4850**  
MICROSTRUCTURE FORMATION WHILE DIRECT SOLIDIFICATION OF BINARY ALLOYS WITH NO CONVECTION

Period	Obligations	
07/15/1993-06/30/1994	FY93: \$125,000	TOTAL: \$125,000
Prin. Invest.	NASA Tech. Officer	CASE Category
R A BROWN	MSFC/F R SZOFRAN	43-Chem Engr

**NAG 8-970 Massachusetts Institute of Technology 4851**  
MEASUREMENTS OF THE VISCOSITY OF UNDERCOOLED MELTS UNDER THE CORDITION OF MICROGRAVITY AND SUPPORT

Period	Obligations	
05/21/1993-02/28/1994	FY93: \$109,995	TOTAL: \$109,995
Prin. Invest.	NASA Tech. Officer	CASE Category
J SZEKELY	MSFC/R C DARTY	12-Chemistry

**NAG 8-971 Massachusetts Institute of Technology 4852**  
ALLOY UNDERCOOLING EXPERIMENTS

Period	Obligations	
03/19/1993-03/18/1994	FY93: \$196,998	TOTAL: \$196,998
Prin. Invest.	NASA Tech. Officer	CASE Category
M FLEMINGS	MSFC/R C DARTY	13-Physics

**NAG 8-980 Massachusetts Institute of Technology 4853**  
DETERMINE HEAT PIPE PERFORMANCE MELT/CONFINEMENT INTERACTION UNDER LESS GRAVITY

Period	Obligations	
07/16/1993-06/30/1994	FY93: \$59,955	TOTAL: \$59,955
Prin. Invest.	NASA Tech. Officer	CASE Category
H E WITT	MSFC/R C DARTY	13-Physics

**NAG 9-108 Massachusetts Institute of Technology 4854**  
NON-EQUILIBRIUM CHEMISTRY/EARLY SOLAR SY

Period	Obligations	
05/01/1985-05/01/1994	FY93: \$0	TOTAL: \$345,010
Prin. Invest.	NASA Tech. Officer	CASE Category
R G PRINN	JSC/I D BROWNE	47-Materials Engr

**NAG 9-125 Massachusetts Institute of Technology 4855**  
DISPLAY ORIENTATION + GRAPHIC INPUT DEVI

Period	Obligations	
07/22/1985-10/01/1993	FY93: \$0	TOTAL: \$1,008,681
Prin. Invest.	NASA Tech. Officer	CASE Category
H C ALEXANDER	JSC/L A LUTZ	39-Env Sci, NEC
B K LICHTENBERG	.... / L S EVANS	

**NAG 9-144 Massachusetts Institute of Technology 4856**  
NUTRITIONAL CONTROL BRAIN NEUROTRANSMITT

Period	Obligations	
03/15/1986-07/01/1992	FY93: \$36	TOTAL: \$379,964
Prin. Invest.	NASA Tech. Officer	CASE Category
R J WURTMAN	JSC/N M CINTRON	56-Medical Sciences
H R LIEBERMAN		

**NAG 9-302 Massachusetts Institute of Technology 4857**  
CRYSTALLIZATION PROCESS IN EUCRITE BODY

Period	Obligations	
07/11/1988-07/01/1994	FY93: \$0	TOTAL: \$189,590
Prin. Invest.	NASA Tech. Officer	CASE Category
T L GROVE	JSC/I D BROWNE	32-Geological Sci

**NAG 9-531 Massachusetts Institute of Technology 4858**  
A GEOLOGIC/ISOTOPIC/GEOCHRONOLOGIC INVESTIGATION OF SLAVE CRATON/GROWTH AND DIFFERENTIATION

Period	Obligations	
06/14/1991-04/30/1992	FY93: \$15	TOTAL: \$39,110
Prin. Invest.	NASA Tech. Officer	CASE Category
S A BOWRING	JSC/I D BROWNE	19-Phys Sci, NEC

**NAG 9-602 Massachusetts Institute of Technology 4859**  
EFFECT OF MICROGRAVITY ON MICROBIAL SECONDARY METABOLISM

Period	Obligations	
05/05/1992-05/01/1994	FY93: \$75,000	TOTAL: \$146,648
Prin. Invest.	NASA Tech. Officer	CASE Category
A L DEMAINE	JSC/D L PIERSON	51-Biological Sci

**NAG 9-655 Massachusetts Institute of Technology 4860**  
MICROGRAVITY STUDIES OF CELL POLYMER CARTILAGE IMPLANTS

Period	Obligations	
01/22/1993-12/01/1993	FY93: \$150,000	TOTAL: \$150,000
Prin. Invest.	NASA Tech. Officer	CASE Category
L E FREED	JSC/G SPAULDING	51-Biological Sci

**NAG 9-678 Massachusetts Institute of Technology 4861**  
STABLE GRASPING OF OBJECTS USING VISION AND TOUCH INFORMATION: STATIC CYLINDERS

Period	Obligations	
04/01/1993-04/01/1994	FY93: \$33,000	TOTAL: \$33,000
Prin. Invest.	NASA Tech. Officer	CASE Category
J K SALISBURY	JSC/L LI	46-Mech Engr

**NAG 9-694 Massachusetts Institute of Technology 4862**  
INTERNSHIP PROGRAM

Period	Obligations	
05/26/1993-05/01/1994	FY93: \$24,223	TOTAL: \$24,223
Prin. Invest.	NASA Tech. Officer	CASE Category
J L KERREBROCK	JSC/S H GOLDSTEIN	41-Aero Engr

**NAGW 474 Massachusetts Institute of Technology 4863**  
INTERPRETATION OF NIMBUS-7 AND SAGE-1 AEROSOL AND TRACE GAS DATA USING THREE-DIMENSIONAL MODELS

Period	Obligations	
06/17/1983-12/31/1993	FY93: \$113,660	TOTAL: \$974,254
Prin. Invest.	NASA Tech. Officer	CASE Category
R G PRINN	HQ/J A KAYE	31-Atmos Sci
	.... / R E MURPHY	

**NAGW 525 Massachusetts Institute of Technology 4864**  
STUDIES OF GLOBAL SCALE EVALUATION PROCESS OF THE EARTH'S ATMOSPHERE

Period	Obligations	
11/01/1983-09/30/1993	FY93: \$79,790	TOTAL: \$1,472,155
Prin. Invest.	NASA Tech. Officer	CASE Category
R S LINDZEN	HQ/R K KAKAR	31-Atmos Sci
R DOLE	.... / J THEON	

**NASA'S UNIVERSITY PROGRAM  
MASSACHUSETTS (Continued)**

**NAGW 706 Massachusetts Institute of Technology 4865**  
SOLAR SYSTEM DYNAMICS

Period	Obligations	
02/01/1985-09/30/1993	FY93: \$104,500	TOTAL: \$530,683
Prin. Invest.	NASA Tech. Officer	CASE Category
J WISDOM	HQ/J R UNDERWOOD	32-Geological Sci
	....J M BOYCE	

**NAGW 732 Massachusetts Institute of Technology 4866**  
GLOBAL ATMOSPHERIC GASES EXPERIMENT (GAGE)

Period	Obligations	
11/01/1984-01/31/1994	FY93: \$303,800	TOTAL: \$1,448,139
Prin. Invest.	NASA Tech. Officer	CASE Category
R G PRINN	HQ/R D MCPETERS	31-Atmos Sci
	....M J PRATHER	

**NAGW 1048 Massachusetts Institute of Technology 4867**  
FOUR MONTH NCE THROUGH 2/28/89 UNDER NEW CLAUSE

Period	Obligations	
05/01/1987-02/28/1994	FY93: \$168,930	TOTAL: \$1,037,035
Prin. Invest.	NASA Tech. Officer	CASE Category
C WUNSCH	HQ/J G RICHMAN	33-Oceanography
	....W S WILSON	

**NAGW 1272 Massachusetts Institute of Technology 4868**  
SEA STATE BIAS IN RADAR ALTIMETRY

Period	Obligations	
04/07/1988-09/30/1992	FY93: \$0	TOTAL: \$760,579
Prin. Invest.	NASA Tech. Officer	CASE Category
W K MELVILLE	HQ/G S LAGERLOEF	33-Oceanography
	....W S WILSON	

**NAGW 1335 Massachusetts Institute of Technology 4869**  
CENTER FOR SPACE ENGINEERING RESEARCH

Period	Obligations	
08/09/1988-10/31/1993	FY93: \$1,391,728	TOTAL: \$6,934,250
Prin. Invest.	NASA Tech. Officer	CASE Category
E F CRAWLEY	HQ/G I JOHNSTON	49-Engr, NEC

**NAGW 1386 Massachusetts Institute of Technology 4870**  
A STUDY OF INTERFEROMETRIC METHODS FOR THE DETCTRON PLANETS

Period	Obligations	
08/03/1988-12/31/1993	FY93: \$75,000	TOTAL: \$378,000
Prin. Invest.	NASA Tech. Officer	CASE Category
B I BURKE	HQ/C PILCHER	11-Astronomy

**NAGW 1450 Massachusetts Institute of Technology 4871**  
PHOTOMETRY OF PLUTO-CHARON MUTUAL EVENTS

Period	Obligations	
08/23/1988-09/30/1993	FY93: \$50,000	TOTAL: \$215,000
Prin. Invest.	NASA Tech. Officer	CASE Category
R BINZEL	HQ/J H RAHE	11-Astronomy

**NAGW 1494 Massachusetts Institute of Technology 4872**  
OCCULTATION STUDIES OF THE SOLAR SYSTEM

Period	Obligations	
12/12/1988-11/30/1993	FY93: \$58,500	TOTAL: \$398,580
Prin. Invest.	NASA Tech. Officer	CASE Category
J L ELLIOT	HQ/J H RAHE	11-Astronomy

**NAGW 1532 Massachusetts Institute of Technology 4873**  
PLASMA TURBULENCE AAND PARTICLE ACCELERATION IN THE

Period	Obligations	
11/29/1988-12/31/1993	FY93: \$84,000	TOTAL: \$321,801
Prin. Invest.	NASA Tech. Officer	CASE Category
T S CHANG	HQ/M M MELLOTT	13-Physics
	....T W PERRY	

**NAGW 1545 Massachusetts Institute of Technology 4874**  
THEORETICAL STUDIES OF COLLAPSED OBJECTS IN BINARY

Period	Obligations	
12/01/1988-12/31/1993	FY93: \$63,000	TOTAL: \$276,004
Prin. Invest.	NASA Tech. Officer	CASE Category
P C JOSS	HQ/L J KALUZIENSKI	11-Astronomy
S RAPPAPORT	....A N BUNNER	

**NAGW 1550 Massachusetts Institute of Technology 4875**  
INVESTIGATIONS OF THE INTERPLANETARY MEDIUM

Period	Obligations	
12/06/1988-11/30/1993	FY93: \$65,000	TOTAL: \$505,130
Prin. Invest.	NASA Tech. Officer	CASE Category
A J LAZARUS	HQ/M M MELLOTT	13-Physics
	....W V JONES	

**NAGW 1563 Massachusetts Institute of Technology 4876**  
CRYSTAL GROWTH OF DEVICE QUALITY GAAS IN SPACE

Period	Obligations	
12/12/1988-11/30/1992	FY93: \$0	TOTAL: \$790,000
Prin. Invest.	NASA Tech. Officer	CASE Category
J LAGOWSKI	HQ/R K CROUCH	19-Phys Sci, NEC
	....F D LEMKEY	

**NAGW 1617 Massachusetts Institute of Technology 4877**  
REMOTE SENSING OF EARTH TERRAIN

Period	Obligations	
01/19/1989-12/31/1993	FY93: \$60,000	TOTAL: \$510,000
Prin. Invest.	NASA Tech. Officer	CASE Category
J A KONG	HQ/G ASRAR	13-Physics
	....M RUZEK	

**NAGW 1667 Massachusetts Institute of Technology 4878**  
INELASTIC COLLISION PROCESSES IN OZONE AND THEIR RELATION

Period	Obligations	
03/08/1989-05/31/1994	FY93: \$80,000	TOTAL: \$365,959
Prin. Invest.	NASA Tech. Officer	CASE Category
J I STEINFELD	HQ/M J KURYLO	31-Atmos Sci
	....S G TILFORD	

**NAGW 1696 Massachusetts Institute of Technology 4879**  
TESTING ECOLOGICAL OPTIMIZATION HYPOTHESES IN SEMIARID REG.

Period	Obligations	
04/05/1989-12/31/1992	FY93: \$0	TOTAL: \$300,000
Prin. Invest.	NASA Tech. Officer	CASE Category
P EAGLESON	HQ/G ASRAR	39-Env Sci, NEC
	....M RUZEK	

**NAGW 1727 Massachusetts Institute of Technology 4880**  
LARGE-SCALE DYNAMICS AND TRANSPORT IN THE STRATOSPHERE

Period	Obligations	
03/17/1989-02/28/1994	FY93: \$117,386	TOTAL: \$515,469
Prin. Invest.	NASA Tech. Officer	CASE Category
R A PLUMB	HQ/R D MCPETERS	31-Atmos Sci
	....M J PRATHER	

**NASA'S UNIVERSITY PROGRAM  
MASSACHUSETTS (Continued)**

**NAGW 1841      Massachusetts Institute of Technology      4881**

# ASTRONOMY IN THE REGION BETWEEN 1MM AND .1 MM WAVE LENGTHS

<i>Period</i>	<i>Obligations</i>	
01/24/1990-10/31/1993	FY93: \$68,309	TOTAL: \$358,826
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
S S MEYER	HQ/G LEVY	19-Phys Sci, NEC

**NAGW 2049      Massachusetts Institute of Technology      4888**

ELECTRONIC SPECTRA OF MATERIALS SIMULATING PLANETARY SURFACES: OXIDATION PRODUCTS ON MARS AND VENU

<i>Period</i>	<i>Obligations</i>	
04/05/1990-10/31/1993	FY93: \$50,200	TOTAL: \$194,200
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
R BURNS	HQ/T A MAXWELL	32-Geological Sci

**NAGW 1937      Massachusetts Institute of Technology      4882**

TECTONIC HISTORY OF THE TERRESTRIAL PLANETS

Period	FY93: \$0	Obligations
02/20/1990-09/30/1992		TOTAL: \$472,560
Prin. Invest.	NASA Tech. Officer	CASE Category
S C SOLOMON	HQ/T A MAXWELL	32-Geological Sci

**NAGW 2089      Massachusetts Institute of Technology      4889**

CONTINUED DEVELOPMENT OF AN EXPLOSIVE TRANSIENT CAMERA FOR IDENTIFICATION OF GAMMA RAY BURST SOURCE

Period	Obligations	
06/06/1990-11/30/1993	FY93: \$193,000	TOTAL: \$1,090,848
Prin. Invest.	NASA Tech. Officer	CASE Category
G RICKER	HQ/L J KALUZIENSKI	11-Astronomy
	.../A N BUNNER	

**NAGW 1951      Massachusetts Institute of Technology      4883**

# PROPOSAL FOR THE STUDY OF RATES AND GEOMETRIES OF DEFORMATION IN AN ACTIVE 'BACK-ARC' EX. REGIME

Period	Obligations	EX. RESUME
04/19/1990-09/30/1994	FY93: \$40,000	TOTAL: \$160,000
Prin. Invest.	NASA Tech. Officer	CASE Category
L H ROYDEN	HQ/M BALTUCK	51-Biological Sci

**NAGW 2155      Massachusetts Institute of Technology      4890**

NAGW-2155/MASS INSTITUTE TECHNOLOGY/GEODETIC, REMOTE SENSING, GEOLOGICAL AND GEOPHYSICAL STUDY

<i>Period</i>	<i>Obligations</i>	
08/08/1990-05/31/1994	FY93: \$54,760	TOTAL: \$315,460
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
B G BURCHFIEL	HQ/M BALTUCK	32-Geological Sci
	....T PIEPER	

**NAGW 1961      Massachusetts Institute of Technology      4884**

NAGW-1961/MASS INSTITUTE OF TECHNOLOGY/GPS DENSIFICATION OF THE SLR NETWORK IN TURKEY

<i>Period</i>	<i>Obligations</i>	
04/18/1990-12/31/1993	FY93: \$92,000	TOTAL: \$286,990
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
M N TOKSOZ	HQ/M BALTUCK	19-Phys Sci, NEC

**NAGW 2161      Massachusetts Institute of Technology      4891**

# CONVECTION IN VENUS: OBSERVATIONS, MODELS AND COMPARISON WITH EARTH

<i>Period</i>	<i>Obligations</i>	
06/13/1990-12/31/1993	FY93: \$50,000	TOTAL: \$180,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
B H HAGER	HQ/T A MAXWELL	32-Geological Sci

**NAGW 2003      Massachusetts Institute of Technology      4885**

# EXPERIMENTAL AND OBSERVATIONAL INVESTIGATIONS IN HIGH ENERGY ASTROPHYSICS

<i>Period</i>	<i>Obligations</i>	
04/20/1990-12/31/1993	FY93: \$269,810	TOTAL: \$1,674,570
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
G CLARK	HQ/L J KALUZIENSKI	11-Astronomy
	..../A N BUNNER	

**NAGW 2190      Massachusetts Institute of Technology      4892**

NAGW-2190/MASS INSTITUTE OF TECHNOLOGY/LABORATORY  
CHEMISTRY OF CHLORINE AND FLUORINE COMPOUNDS

<i>Period</i>	<i>Obligations</i>	
08/08/1990-12/31/1993	FY93: \$204,965	TOTAL: \$791,905
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
M J MOLINA	HQ/M J KURYLO	31-Atmos Sci
	..../R T WATSON	

**NAGW 2014      Massachusetts Institute of Technology      4886**

SPACE ENGINEERING (SECTION II)

<i>Period</i>	<i>Obligations</i>	
02/28/1990-03/31/1994	FY93: \$125,000	TOTAL: \$465,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
E F CRAWLEY	HQ/E W BULL	49-Engr, NEC
E CRAWLEY	..../S L VENNERI	
J W MAR		

**NAGW 2220      Massachusetts Institute of Technology      4893**

# TEMPORAL VARIATIONS OF PH AND IRON OXIDATION STATE ON MARS

<i>Period</i>	<i>Obligations</i>
05/21/1991-10/31/1993	FY93: \$50,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>
R G BURNS	HQ/T A MAXWELL
	TOTAL: \$150,000
	<i>CASE Category</i>
	32-Geological Sci

**NAGW 2048      Massachusetts Institute of Technology      4887**

# SPACE-TIME EVOLUTION OF CYCLOTRON MASER INSTABILITIES GENERATING AURORAL KILOMETRIC RADIATION

<i>Period</i>	<i>Obligations</i>
05/08/1990-03/31/1994	FY93: \$33,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>
A BERS	HQ/M M MELLOTT
	....T PERRY
	TOTAL: \$222,000
	<i>CASE Category</i>
	13-Physics

**NAGW 2310      Massachusetts Institute of Technology      4894**

NAGW-2310/MASS INSTITUTE TECHNOLOGY/THE FEASIBILITY OF  
A RADIO ASTROMETRIC SEARCH FOR PLANETARY

<i>Period</i>	<i>Obligations</i>
01/23/1991-10/31/1993	FY93: \$45,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>
J N HEWITT	HQ/J A NUTH
	TOTAL: \$135,000
	<i>CASE Category</i>
	19-Phys Sci, NEC

**NASA'S UNIVERSITY PROGRAM  
MASSACHUSETTS (Continued)**

**NAGW 2341      Massachusetts Institute of Technology      4895**  
THE PREBIOTIC SYNTHESIS OF POLYNUCLEOTIDES AND POLYNUCLEOTIDE DIRECTED POLYPEPTIDES

Period	Obligations	
02/14/1991-11/30/1992	FY93: \$66,000	TOTAL: \$198,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
A RICH	HQ/J D RUMMEL	51-Biological Sci

**NAGW 2385      Massachusetts Institute of Technology      4896**  
ANALYSIS OF VARIATIONS IN NEPTUNE'S ATMOSPHERE CORRELATED SPACECRAFT/GROUND-BASED IMAGING AND PHOTO

Period	Obligations	
05/21/1991-02/28/1994	FY93: \$92,360	TOTAL: \$251,250
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
H B HAMMEL	HQ/W L QUAIDE	19-Phys Sci, NEC

**NAGW 2387      Massachusetts Institute of Technology      4897**  
NAGW-2387/MASS INSTITUTE TECHNOLOGY/SPECTRAL LINE POSITIONS, INTENSITIES, AND ASSIGNMENTS FOR METHANE

Period	Obligations	
06/04/1991-12/31/1993	FY93: \$55,000	TOTAL: \$157,500
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
J I STEINFELD	HQ/J T BERGSTRALH	11-Astronomy

**NAGW 2403      Massachusetts Institute of Technology      4898**  
DETAILED ANALYSIS OF LOW ENERGY PLASMA DATA

Period	Obligations	
06/10/1991-03/31/1994	FY93: \$150,000	TOTAL: \$445,999
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
J W BELCHER	HQ/W L QUAIDE	19-Phys Sci, NEC

**NAGW 2424      Massachusetts Institute of Technology      4899**  
SIAM BALLOON-BORNE MAGNET DESIGN

Period	Obligations	
07/15/1991-04/30/1992	FY93: \$0	TOTAL: \$190,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
B MONTGOMERY	HQ/J C LING	13-Physics

**NAGW 2629      Massachusetts Institute of Technology      4900**  
NAGW-2629/MASS INSTITUTE TECHNOLOGY/ANALYSIS OF GRAVITY, MAGNETIC AND SEISMIC REFLECTION DATA FROM TI

Period	Obligations	
07/22/1991-01/31/1994	FY93: \$71,068	TOTAL: \$228,748
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
M MCNUTT	HQ/M BALTUCK	32-Geological Sci

**NAGW 2674      Massachusetts Institute of Technology      4901**  
FLUID MECHANICS AND MASS TRANSFER IN MELT CRYSTAL GROWTH: MACRO- AND MICRO-SCALE ANALYSIS

Period	Obligations	
08/20/1991-06/30/1993	FY93: \$0	TOTAL: \$361,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
R A BROWN	HQ/B M CARPENTER	19-Phys Sci, NEC

**NAGW 2711      Massachusetts Institute of Technology      4902**  
THE APPLICATION OF THE ADJOINT METHOD TO THE CME

Period	Obligations	
09/04/1991-08/31/1994	FY93: \$147,750	TOTAL: \$431,140
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
P MALANOTTE-RIZZO	HQ/D ADAMEO	31-Atmos Sci
	....R A SCHIFFER	

**NAGW 2795      Massachusetts Institute of Technology      4903**  
EVOLUTION OF LATE ARCHEAN CARBONATE SEDIMENTS, STROMATOLITES, AND ENVIRONMENTS

Period	Obligations	
12/18/1991-12/31/1993	FY93: \$77,059	TOTAL: \$148,979
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
J P GROTZINGER	HQ/J D RUMMEL	32-Geological Sci

**NAGW 2807      Massachusetts Institute of Technology      4904**  
INFRARED EMISSION OF MICROWAVE BACKGROUND ANISOTROPY FROM COSMOLOGICAL N-BODY SIMULATIONS

Period	Obligations	
01/06/1992-11/30/1993	FY93: \$37,000	TOTAL: \$75,060
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
E BERTSCHINGER	HQ/L J CAROFF	11-Astronomy

**NAGW 2812      Massachusetts Institute of Technology      4905**  
PLANETARY RINGS: OBSERVATION AND ANALYSIS

Period	Obligations	
01/03/1992-09/30/1993	FY93: \$27,500	TOTAL: \$55,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
J L ELLIOT	HQ/W L QUAIDE	11-Astronomy

**NAGW 2891      Massachusetts Institute of Technology      4906**  
PROPOSAL FOR DIAGNOSTIC ANALYSIS AND NUMERICAL MODELING OF NEPTUNE'S ATMOSPHERIC DYNAMICS

Period	Obligations	
02/26/1992-03/31/1994	FY93: \$54,710	TOTAL: \$104,630
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
T E DOWLING	HQ/W L QUAIDE	19-Phys Sci, NEC

**NAGW 2942      Massachusetts Institute of Technology      4907**  
A COUPLED REMOTE SENSINGS AND MODELING APPROACH TO ESTIMATION OF MOISTURE AND TEMPERATURE

Period	Obligations	
02/28/1992-12/31/1993	FY93: \$50,075	TOTAL: \$95,052
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
D ENTEKHABI	HQ/R E MURPHY	39-Env Sci, NEC
	....D M BUTLER	

**NAGW 2956      Massachusetts Institute of Technology      4908**  
GENERAL CIRCULATION OF PLANETARY ATMOSPHERES

Period	Obligations	
03/03/1992-12/31/1993	FY93: \$52,370	TOTAL: \$102,370
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
T E DOWLING	HQ/W L QUAIDE	11-Astronomy

**NASA'S UNIVERSITY PROGRAM  
MASSACHUSETTS (Continued)**

**NAGW 3007 Massachusetts Institute of Technology 4909**  
ANALYSIS OF SPACE GEODETIC MEASUREMENTS FOR STUDYING THE DYNAMICS OF SOLID EARTH

Period	Obligations	
03/20/1992-12/31/1993	FY93: \$130,000	TOTAL: \$255,000
Prin. Invest.	NASA Tech. Officer	CASE Category
T A HERRING	HQ/R E MURPHY	32-Geological Sci
	....D M BUTLER	

**NAGW 3036 Massachusetts Institute of Technology 4910**  
INVERSION OF GRAVITY AND BATHYMETRY IN OCEANIC REGIONS FOR LONG-WAVE LENGTH VARIATIONS

Period	Obligations	
04/03/1992-06/30/1993	FY93: \$0	TOTAL: \$60,000
Prin. Invest.	NASA Tech. Officer	CASE Category
T H JORDAN	HQ/R E MURPHY	32-Geological Sci
	....D M BUTLER	

**NAGW 3079 Massachusetts Institute of Technology 4911**  
NAGW-3079/MASS INSTITUTE OF TECHNOLOGY/EIGHTH INTERNATIONAL SUMMER SCHOOL ON CRYSTAL GROWTH

Period	Obligations	
05/15/1992-04/30/1993	FY93: \$0	TOTAL: \$20,000
Prin. Invest.	NASA Tech. Officer	CASE Category
A F WITT	HQ/C RAY	99-Multi-Discip

**NAGW 3100 Massachusetts Institute of Technology 4912**  
AFRICAN CLIMATE AND VEGETATION STUDIES RELATED TO THE HAPEX SAHEL EXPERIMENT

Period	Obligations	
06/22/1992-07/31/1993	FY93: \$0	TOTAL: \$28,272
Prin. Invest.	NASA Tech. Officer	CASE Category
D ENTEKHABI	HQ/R E MURPHY	31-Atmos Sci
S N NICHOLSON	....D E WICKLAND	

**NAGW 3234 Massachusetts Institute of Technology 4913**  
NAGW-3234/MASS INSTITUTE TECHNOLOGY/STUDIES OF X-RAY POPULATIONS IN THE NEARBY GALAXY M31

Period	Obligations	
11/02/1992-09/30/1993	FY93: \$30,000	TOTAL: \$30,000
Prin. Invest.	NASA Tech. Officer	CASE Category
W LEWIN	HQ/G R RIEGLER	11-Astronomy

**NAGW 3292 Massachusetts Institute of Technology 4914**  
NAGW-3292/MIT/COLLISIONAL EVOLUTION OF KORONIS FAMILY ASTEROIDS

Period	Obligations	
12/10/1992-09/30/1993	FY93: \$34,000	TOTAL: \$34,000
Prin. Invest.	NASA Tech. Officer	CASE Category
R P BINZEL	HQ/H C BRINTON	11-Astronomy

**NAGW 3296 Massachusetts Institute of Technology 4915**  
PLUTO-CHARON PHYSICAL STUDIES WITH OBSERVATIONS FROM MAUNA KEA

Period	Obligations	
01/06/1993-10/31/1993	FY93: \$35,000	TOTAL: \$35,000
Prin. Invest.	NASA Tech. Officer	CASE Category
J L ELLIOT	HQ/H C BRINTON	11-Astronomy

**NAGW 3310 Massachusetts Institute of Technology 4916**  
NAGW-3310/MASS INSTITUTE OF TECHNOLOGY/VERTICAL AEROSOL DISTRIBUTION ON NEPTUNE AND URANUS

Period	Obligations	
01/06/1993-12/31/1993	FY93: \$39,930	TOTAL: \$39,930
Prin. Invest.	NASA Tech. Officer	CASE Category
H B HAMMEL	HQ/H C BRINTON	11-Astronomy

**NAGW 3422 Massachusetts Institute of Technology 4917**  
STUDIES OF ACTIVE COOL STARS

Period	Obligations	
02/25/1993-12/31/1993	FY93: \$49,063	TOTAL: \$49,063
Prin. Invest.	NASA Tech. Officer	CASE Category
D P HUENEMOERDER	HQ/R V STACHNIK	11-Astronomy
	....E J WEILER	

**NAGW 3462 Massachusetts Institute of Technology 4918**  
ORGANIZATION AND CONDUCT OF THE NINTH AMERICAN CONFERENCE

Period	Obligations	
03/23/1993-12/31/1993	FY93: \$10,000	TOTAL: \$10,000
Prin. Invest.	NASA Tech. Officer	CASE Category
A F WITT	HQ/C RAY	19-Phys Sci, NEC

**NAGW 3511 Massachusetts Institute of Technology 4919**  
THEORETICAL STUDY OF HIGH FREQUENCY SOLAR ACOUSTIC OSCILLATIONS

Period	Obligations	
04/06/1993-01/31/1994	FY93: \$30,000	TOTAL: \$30,000
Prin. Invest.	NASA Tech. Officer	CASE Category
P KUMAR	HQ/W J WAGNER	13-Physics
	....J D BOHLIN	

**NAGW 3586 Massachusetts Institute of Technology 4920**  
PHASE EQUILIBRIUM INVESTIGATIONS OF PLANETARY MATERIALS

Period	Obligations	
05/12/1993-06/30/1994	FY93: \$41,715	TOTAL: \$41,715
Prin. Invest.	NASA Tech. Officer	CASE Category
T GROVE	HQ/J BOYCE	32-Geological Sci

**NAGW 3608 Massachusetts Institute of Technology 4921**  
NON-EQUILIBRIUM CHEMISTRY OF THE EARLY SOLAR SYSTEM

Period	Obligations	
05/21/1993-04/30/1994	FY93: \$38,400	TOTAL: \$38,400
Prin. Invest.	NASA Tech. Officer	CASE Category
R PRINN	HQ/J BOYCE	32-Geological Sci

**NAS 1-18690 Massachusetts Institute of Technology 4922**  
MID-DECK 0-GRAVITY DYNAMICS EXPERIMENT

Period	Obligations	
12/06/1988-10/31/1993	FY93: \$474,000	TOTAL: \$4,827,904
Prin. Invest.	NASA Tech. Officer	CASE Category
E CROWLEY	LARC/L G CLARK	42-Astro Engr
	....S M BECK	



**NASA'S UNIVERSITY PROGRAM  
MASSACHUSETTS (Continued)**

**NAS 1-19381 Massachusetts Institute of Technology 4923**  
OPTIMUM PASSIVE DAMPING FOR ACTIVE CONTROL OF SPAC  
ECRAFT STRUCTURES

Period	Obligations	
10/30/1991-09/30/1993	FY93: \$45,000	TOTAL: \$225,000
Prin. Invest.	NASA Tech. Officer	CASE Category
A H VON FLOTOW	LARC/R S TAYLOR	42-Astro Engr
N HAGOOD	....J NEWCOM	

**NAS 1-19622 Massachusetts Institute of Technology 4924**  
MIDDECK ACTIVE CONTROLS EXPERIMENT (MACE) PHASE C/D

Period	Obligations	
08/14/1992-02/14/1995	FY93: \$1,973,000	TOTAL: \$2,354,318
Prin. Invest.	NASA Tech. Officer	CASE Category
E CRAWLEY	LARC/G STOVER	41-Aero Engr
	....J B MILLER	

**NAS 5-30543 Massachusetts Institute of Technology 4925**  
VLBI SUPPORT TO CRUSTAL DYNAMICS PROJECT

Period	Obligations	
02/08/1989-02/07/1994	FY93: \$1,326,543	TOTAL: \$8,690,750
Prin. Invest.	NASA Tech. Officer	CASE Category
A E ROGERS	GSFC/W T WILDES	32-Geological Sci
A E NIELL		

**NAS 5-30550 Massachusetts Institute of Technology 4926**  
FARADAY CUP SENSORS AND MEASUREMENT CHAIN FOR WIND

Period	Obligations	
03/15/1989-03/09/1994	FY93: \$158,996	TOTAL: \$2,137,996
Prin. Invest.	NASA Tech. Officer	CASE Category
J LAZARUS	GSFC/K OGALVIE	42-Astro Engr

**NAS 5-30612 Massachusetts Institute of Technology 4927**  
ALL SKY MONITOR INSTRUMENTS

Period	Obligations	
12/15/1989-09/30/1997	FY93: \$7,248,000	TOTAL: \$16,104,328
Prin. Invest.	NASA Tech. Officer	CASE Category
H BRADT	GSFC/W DAVIS	11-Astronomy

**NAS 5-30791 Massachusetts Institute of Technology 4928**  
ADVANCED MICROWAVE SOUNDING UNIT C STUDY ATMOSPHERIC

Period	Obligations	
03/29/1990-01/14/1992	FY93: \$0	TOTAL: \$180,000
Prin. Invest.	NASA Tech. Officer	CASE Category
D STAELIN	GSFC/G SOFFEN	31-Atmos Sci
P ROSENKRANZ		

**NAS 5-31352 Massachusetts Institute of Technology 4929**  
NRA 89-0SSA-21 ATOPOGRAPHY FROM SHADING AND STEREO'

Period	Obligations	
06/03/1991-06/02/1992	FY93: \$0	TOTAL: \$90,000
Prin. Invest.	NASA Tech. Officer	CASE Category
B HORN	GSFC/H BURRITT	31-Atmos Sci

**NAS 5-31376 Massachusetts Institute of Technology 4930**  
RECURSIVE ESTIMATION OF GEOGRAPHICAL PRODUCTS WITH  
AIRS/AMSU DATA (EOS INVESTIGATION)

Period	Obligations	
01/10/1992-12/14/2001	FY93: \$162,000	TOTAL: \$312,000
Prin. Invest.	NASA Tech. Officer	CASE Category
D H STAELIN	GSFC/E KREINS	32-Geological Sci
P W ROSENKRANZ		

**NAS 5-31721 Massachusetts Institute of Technology 4931**  
EOS INVESTIGATION 'GLOBAL HYDROLOGIC PROCESSES  
CLIMATE'

Period	Obligations	
09/19/1991-09/18/1996	FY93: \$117,625	TOTAL: \$288,250
Prin. Invest.	NASA Tech. Officer	CASE Category
P EAGLESON	GSFC/W LAU	39-Env Sci, NEC

**NAS 5-31728 Massachusetts Institute of Technology 4932**  
ACQUISITION OF VLBI CORRELATOR

Period	Obligations	
03/19/1992-03/19/1995	FY93: \$207,515	TOTAL: \$1,099,515
Prin. Invest.	NASA Tech. Officer	CASE Category
A R WHITNEY	GSFC/B WILDES	32-Geological Sci

**NAS 5-33017 Massachusetts Institute of Technology 4933**  
GLRS SCIENCE TEAM MEMBER STUDY

Period	Obligations	
09/01/1989-02/14/1993	FY93: \$0	TOTAL: \$93,000
Prin. Invest.	NASA Tech. Officer	CASE Category
T HERRING	GSFC/G SOFFEN	39-Env Sci, NEC

**NAS 5-33020 Massachusetts Institute of Technology 4934**  
GLIS SCIENCE TEAM MEMBER STUDY

Period	Obligations	
09/01/1989-02/14/1993	FY93: \$0	TOTAL: \$83,000
Prin. Invest.	NASA Tech. Officer	CASE Category
R REILINGER	GSFC/G SOFFEN	39-Env Sci, NEC

**NAS 8-35018 Massachusetts Institute of Technology 4935**  
STUDY-TURBINE BLADE - TIP SEAL CLEARANCE EXCITATION  
FORCE

Period	Obligations	
06/03/1983-05/29/1992	FY93: \$0	TOTAL: \$1,231,269
Prin. Invest.	NASA Tech. Officer	CASE Category
M M SANCHEZ	MSFC/G WILMER	46-Mech Engr
J BELGACEM	....L A GROSS	
E E COVERT		

**NAS 8-36748 Massachusetts Institute of Technology 4936**  
STUDY ENTITLED 'AXAF BRAGG CRYSTAL SPECTROMETER/HIGH  
ENERGY TRANSMISSION GRATING SPECTROMETER (BCS/H

Period	Obligations	
01/14/1986-12/30/1992	FY93: \$1,306	TOTAL: \$4,836,895
Prin. Invest.	NASA Tech. Officer	CASE Category
E B CALTON	MSFC/C E WINKLER	11-Astronomy

**NAS 8-37716 Massachusetts Institute of Technology 4937**  
CONDUCT AN X-RAY IMAGING SPECTROSCOPY SCIENTIFIC  
INVESTIGATION

Period	Obligations	
07/23/1990-10/30/1997	FY93: \$5,314,000	TOTAL: \$11,958,000
Prin. Invest.	NASA Tech. Officer	CASE Category
G RICKER	MSFC/N B CUMINGS	11-Astronomy

**NASA'S UNIVERSITY PROGRAM  
MASSACHUSETTS (Continued)**

**NAS 8-38249 Massachusetts Institute of Technology 4938**  
AXAF (HETGS)  
*Period* *Obligations*  
07/13/1990-11/30/1999 FY93: \$1,961,000 TOTAL: \$8,258,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
C R CANIZARES MSFC/C E WINKLER 11-Astronomy

**NAS 9-16523 Massachusetts Institute of Technology 4939**  
INS 102/VESTIBULAR EXPER/SPACELAB  
*Period* *Obligations*  
01/01/1982-07/04/1994 FY93: \$977,000 TOTAL: \$6,043,367  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
L R YOUNG JSC/M BUNTIN 59-Life Sci, NEC

**NAS 9-18372 Massachusetts Institute of Technology 4940**  
PLASMA GAS INTERACTION STUDY  
*Period* *Obligations*  
08/08/1990-04/30/1993 FY93: \$0 TOTAL: \$90,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
T F YANG JSC/F R CHANG-DIAZ 13-Physics

**NAS 9-18734 Massachusetts Institute of Technology 4941**  
SPACELAB LIFE SCI MISSION SUPPORT  
*Period* *Obligations*  
08/28/1992-10/17/1993 FY93: \$50,000 TOTAL: \$339,835  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
L R YOUNG JSC/K NEWKIRK 59-Life Sci, NEC

**NASW 4372 Massachusetts Institute of Technology 4942**  
JAPANESE ASTRO-D X-RAY ASTRONOMY MISSION  
*Period* *Obligations*  
12/30/1988-08/31/1994 FY93: \$812,865 TOTAL: \$5,647,529  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
G R RICKER HQ/J LINTOTT 11-Astronomy  
....G OUSLEY

**NASW 4690 Massachusetts Institute of Technology 4943**  
HIGH ENERGY TRANSIENT EXPERIMENT TO DETERMINE ORIGIN AND NATURE OF GAMMA-RAY BURSTS  
*Period* *Obligations*  
03/30/1992-09/30/1995 FY93: \$5,487,000 TOTAL: \$8,702,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
G RICKER HQ/D GILMAN 13-Physics  
....L KALUZIENSKI

**NCA 2-573 Massachusetts Institute of Technology 4944**  
MEASUREMENT OF PRESSURE BROADENING COEFFICIENTS OZONE VIBRATIONAL TRANSITIONS  
*Period* *Obligations*  
10/25/1990-10/31/1991 FY93: \$0 TOTAL: \$40,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J STEINFELD ARC/C CHACKERIAN 12-Chemistry

**NCC 1-157 Massachusetts Institute of Technology 4945**  
AEROELASTIC CONTROL USING STRAIN ACTUATED ADAPTIVE STRUCTURES  
*Period* *Obligations*  
08/05/1991-07/17/1994 FY93: \$245,545 TOTAL: \$383,600  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
E F CRAWLEY LARC/J HEEG 41-Aero Engr

**NCC 2-366 Massachusetts Institute of Technology 4946**  
IMPROVEMENT OF HELICOPTER BLADE DYNAMICS BY ACTIVE CONTROL OF THE CONVENTIONAL SWASH PLATE  
*Period* *Obligations*  
11/01/1987-12/31/1991 FY93: \$0 TOTAL: \$234,983  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
N D HAM ARC/S A JACKLIN 41-Aero Engr  
....P K SNYDER

**NCC 2-447 Massachusetts Institute of Technology 4947**  
IMPROVEMENT OF HELICOPTER ATTITUDE STABILITY BY ACTIVE CONTROL OF THE CONVENTIONAL SWASH PLATE  
*Period* *Obligations*  
11/01/1987-01/31/1992 FY93: \$0 TOTAL: \$185,319  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
N D HAM ARC/P D TALBOT 41-Aero Engr  
....D BALOUGH

**NCC 2-570 Massachusetts Institute of Technology 4948**  
PRINCIPAL INVESTIGATOR IN A BOX  
*Period* *Obligations*  
12/29/1988-09/30/1993 FY93: \$220,000 TOTAL: \$1,402,190  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
L R YOUNG ARC/P E FRIEDLAND 22-Computer Science  
....D A ROSENTHAL

**NCC 2-771 Massachusetts Institute of Technology 4949**  
INERTIAL HEAD TRACKER FOR USE IN SUPER AUDITORY LOCALIZATION EXPERIMENTS  
*Period* *Obligations*  
10/14/1992-08/31/1994 FY93: \$117,500 TOTAL: \$117,500  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
N I PURLACH ARC/E M WENZEL 69-Psych, NEC  
....C N NULL

**NCC 3-117 Massachusetts Institute of Technology 4950**  
SHEAR FLOW INSTABILITY AND TURBULENCE  
*Period* *Obligations*  
09/28/1988-12/31/1991 FY93: \$1 TOTAL: \$79,899  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
M T LANDAHL LERC/M E GOLDSTEIN 41-Aero Engr

**NCC 3-256 Massachusetts Institute of Technology 4951**  
VISUAL 3 ENHANCEMENTS  
*Period* *Obligations*  
03/17/1992-05/31/1993 FY93: \$93,210 TOTAL: \$128,997  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R HAILES LERC/G J FOLLEN 29-Math/Computer, NEC

**NCC 3-265 Massachusetts Institute of Technology 4952**  
MIT ENGINEERING INTERNSHIP PROGRAM  
*Period* *Obligations*  
05/20/1992-05/31/1994 FY93: \$67,888 TOTAL: \$104,766  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J L KERREBROCK LERC/S A APP 41-Aero Engr

**NCC 3-307 Massachusetts Institute of Technology 4953**  
LOBED MIXER EXPERIMENTS IN REACTING FLOWS  
*Period* *Obligations*  
05/05/1993-04/14/1994 FY93: \$53,655 TOTAL: \$53,655  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
I A WAITZ LERC/C J MAREK 41-Aero Engr

**NASA'S UNIVERSITY PROGRAM  
MASSACHUSETTS (Continued)**

**NGL22-9640 Massachusetts Institute of Technology 4954**  
JOINT UNIVERSITY RESEARCH PROGRAM FOR AIR  
TRANSPORTATION NEEDS \$94,000

Period	Obligations	
11/16/1971-01/31/1994	FY93: \$130,000	TOTAL: \$1,861,988
Prin. Invest.	NASA Tech. Officer	CASE Category
R W SIMPSON	LARC/F R MORRELL	41-Aero Engr

**NGR22-9727 Massachusetts Institute of Technology 4955**  
STUDY IN NUMERICAL MODELLING OF ATMOSPHERIC  
PHENOMENA

Period	Obligations	
02/01/1973-12/31/1993	FY93: \$50,000	TOTAL: \$2,671,920
Prin. Invest.	NASA Tech. Officer	CASE Category
P H STONE	GSFC/D DUFFY	31-Atmos Sci

**NGT 00-030-002 Massachusetts Institute of Technology 4956**  
NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM

Period	Obligations	
10/03/1990-08/31/1992	FY93: \$0	TOTAL: \$44,000
Prin. Invest.	NASA Tech. Officer	CASE Category
C C WUNSCLT	HQ/G ASRAR	33-Oceanography

**NGT 00-030-036 Massachusetts Institute of Technology 4957**  
NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM

Period	Obligations	
02/07/1991-08/31/1993	FY93: \$0	TOTAL: \$66,000
Prin. Invest.	NASA Tech. Officer	CASE Category
R ZHANG	HQ/G ASRAR	31-Atmos Sci

**NGT 00-030-086 Massachusetts Institute of Technology 4958**  
NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM

Period	Obligations	
09/12/1991-08/31/1993	FY93: \$0	TOTAL: \$44,000
Prin. Invest.	NASA Tech. Officer	CASE Category
E A ELTAHIR	HQ/D M BUTLER	39-Env Sci, NEC
R L BRAS	....G S WILSON	

**NGT 00-030-109 Massachusetts Institute of Technology 4959**  
NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM

Period	Obligations	
10/22/1992-08/31/1994	FY93: \$44,000	TOTAL: \$44,000
Prin. Invest.	NASA Tech. Officer	CASE Category
N M MAHOWALD	HQ/G ASRAR	33-Oceanography
	....D M BUTLER	

**NGT 00-030-151 Massachusetts Institute of Technology 4960**  
NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM

Period	Obligations	
10/22/1992-08/31/1994	FY93: \$44,000	TOTAL: \$44,000
Prin. Invest.	NASA Tech. Officer	CASE Category
A M MACDONALD	HQ/G ASRAR	99-Multi-Discip
	....R A SCHIFFER	

**NGT 00-040-001 Massachusetts Institute of Technology 4961**  
NATIONAL SPACE GRANT COLLEGE

Period	Obligations	
10/10/1989-01/31/1994	FY93: \$395,000	TOTAL: \$1,415,903
Prin. Invest.	NASA Tech. Officer	CASE Category
D E HASTINGS	HQ/E T SCHWARTZ	99-Multi-Discip

**NGT 00-050-364 Massachusetts Institute of Technology 4962**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM

Period	Obligations	
08/08/1988-07/31/1992	FY93: \$0	TOTAL: \$80,000
Prin. Invest.	NASA Tech. Officer	CASE Category
S DUBOWSKY	HQ/F C OWENS	46-Mech Engr

**NGT 00-050-512 Massachusetts Institute of Technology 4963**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM

Period	Obligations	
11/02/1989-08/31/1992	FY93: \$0	TOTAL: \$62,000
Prin. Invest.	NASA Tech. Officer	CASE Category
S R BUSSOLARI	HQ/F C OWENS	41-Aero Engr

**NGT 00-050-513 Massachusetts Institute of Technology 4964**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM

Period	Obligations	
10/11/1990-08/31/1992	FY93: \$0	TOTAL: \$62,000
Prin. Invest.	NASA Tech. Officer	CASE Category
T MADDEN	HQ/F C OWENS	13-Physics

**NGT 00-050-655 Massachusetts Institute of Technology 4965**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM

Period	Obligations	
09/04/1990-08/31/1992	FY93: \$0	TOTAL: \$44,000
Prin. Invest.	NASA Tech. Officer	CASE Category
H BRADT	HQ/F C OWENS	13-Physics

**NGT 00-050-669 Massachusetts Institute of Technology 4966**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM

Period	Obligations	
09/11/1991-02/28/1994	FY93: \$0	TOTAL: \$66,000
Prin. Invest.	NASA Tech. Officer	CASE Category
J L ELLIOT	HQ/F C OWENS	11-Astronomy

**NGT 00-050-693 Massachusetts Institute of Technology 4967**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM

Period	Obligations	
09/17/1991-08/31/1992	FY93: \$0	TOTAL: \$44,000
Prin. Invest.	NASA Tech. Officer	CASE Category
R STANLEY	JPL/H ASHKENAS	21-Mathematics

**NGT 00-050-720 Massachusetts Institute of Technology 4968**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM

Period	Obligations	
05/10/1991-06/30/1993	FY93: \$0	TOTAL: \$44,000
Prin. Invest.	NASA Tech. Officer	CASE Category
S MEYER	HQ/F C OWENS	13-Physics

**NGT 00-050-835 Massachusetts Institute of Technology 4969**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM

Period	Obligations	
09/19/1991-08/31/1994	FY93: \$22,000	TOTAL: \$66,000
Prin. Invest.	NASA Tech. Officer	CASE Category
R A BROOKS	HQ/F C OWENS	22-Computer Science

**NASA'S UNIVERSITY PROGRAM  
MASSACHUSETTS (Continued)**

**NGT 00-050-843 Massachusetts Institute of Technology 4970**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM

Period	Obligations	
08/20/1991-06/30/1993	FY93: \$0	TOTAL: \$44,000
Prin. Invest.	NASA Tech. Officer	CASE Category
D LANNING	HQ/F C OWENS	49-Engr, NEC

**NGT 00-090-149 Massachusetts Institute of Technology 4978**  
UNDERGRADUATE STUDENT RESEARCH PROGRAM/UMF

Period	Obligations	
11/13/1992-08/14/1994	FY93: \$24,000	TOTAL: \$24,000
Prin. Invest.	NASA Tech. Officer	CASE Category
J JACKSON	HQ/D K RUSSELL	99-Multi-Discip

**NGT 00-050-908 Massachusetts Institute of Technology 4971**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM

Period	Obligations	
05/29/1992-06/30/1993	FY93: \$0	TOTAL: \$22,000
Prin. Invest.	NASA Tech. Officer	CASE Category
S MEYER	HQ/J ALEXANDER	13-Physics

**NGT 00-090-208 Massachusetts Institute of Technology 4979**  
UNDERGRADUATE STUDENT RESEARCHERS (UMF) PROGRAM

Period	Obligations	
09/16/1993-08/14/1994	FY93: \$12,000	TOTAL: \$12,000
Prin. Invest.	NASA Tech. Officer	CASE Category
J JACKSON	HQ/D K RUSSELL	99-Multi-Discip

**NGT 00-050-925 Massachusetts Institute of Technology 4972**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM

Period	Obligations	
06/15/1992-06/30/1994	FY93: \$22,000	TOTAL: \$44,000
Prin. Invest.	NASA Tech. Officer	CASE Category
D ENTEKHABI	GSFC/G SOFFEN	44-Civil Engr

**NGT 00-090-209 Massachusetts Institute of Technology 4980**  
UNDERGRADUATE STUDENT RESEARCHERS PROGRAM

Period	Obligations	
09/16/1993-08/14/1994	FY93: \$12,000	TOTAL: \$12,000
Prin. Invest.	NASA Tech. Officer	CASE Category
J JACKSON	HQ/D K RUSSELL	99-Multi-Discip

**NGT 00-050-940 Massachusetts Institute of Technology 4973**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM

Period	Obligations	
06/29/1992-08/31/1993	FY93: \$0	TOTAL: \$22,000
Prin. Invest.	NASA Tech. Officer	CASE Category
G WALL	ARC/M MOORE	42-Astro Engr

**NGT 00-090-210 Massachusetts Institute of Technology 4981**  
UNDERGRADUATE STUDENT RESEARCHERS (UMF) PROGRAM

Period	Obligations	
09/16/1993-08/14/1994	FY93: \$12,000	TOTAL: \$12,000
Prin. Invest.	NASA Tech. Officer	CASE Category
J JACKSON	HQ/D K RUSSELL	99-Multi-Discip

**NGT 00-051-069 Massachusetts Institute of Technology 4974**  
GRADUATE STUDENT RESEARCHERS PROGRAM

Period	Obligations	
05/19/1993-06/30/1994	FY93: \$22,000	TOTAL: \$22,000
Prin. Invest.	NASA Tech. Officer	CASE Category
J SZEKELY	HQ/B CARPENTER	47-Materials Engr

**NGT 00-090-211 Massachusetts Institute of Technology 4982**  
UNDERGRADUATE STUDENT RESEARCHERS (UMF) PROGRAM

Period	Obligations	
09/14/1993-08/14/1994	FY93: \$12,000	TOTAL: \$12,000
Prin. Invest.	NASA Tech. Officer	CASE Category
J JACKSON	HQ/D K RUSSELL	99-Multi-Discip

**NGT 00-051-136 Massachusetts Institute of Technology 4975**  
GRADUATE STUDENT RESEARCHERS PROGRAM

Period	Obligations	
06/22/1993-08/31/1994	FY93: \$22,000	TOTAL: \$22,000
Prin. Invest.	NASA Tech. Officer	CASE Category
P CEBE	HQ/D A HOLLAND	47-Materials Engr

**NGT 00-090-212 Massachusetts Institute of Technology 4983**  
UNDERGRADUATE STUDENT RESEARCHERS (UMF) PROGRAM

Period	Obligations	
09/16/1993-08/14/1994	FY93: \$12,000	TOTAL: \$12,000
Prin. Invest.	NASA Tech. Officer	CASE Category
J JACKSON	HQ/D K RUSSELL	99-Multi-Discip

**NGT 00-051-158 Massachusetts Institute of Technology 4976**  
GRADUATE STUDENT RESEARCHERS PROGRAM

Period	Obligations	
07/23/1993-08/31/1994	FY93: \$22,000	TOTAL: \$22,000
Prin. Invest.	NASA Tech. Officer	CASE Category
D ENTEKHABI	HQ/G LESANE	44-Civil Engr

**NGT 00-090-213 Massachusetts Institute of Technology 4984**  
UNDERGRADUATE STUDENT RESEARCHERS (UMF) PROGRAM

Period	Obligations	
09/16/1993-08/14/1994	FY93: \$12,000	TOTAL: \$12,000
Prin. Invest.	NASA Tech. Officer	CASE Category
J JACKSON	HQ/D K RUSSELL	99-Multi-Discip

**NGT 00-070-158 Massachusetts Institute of Technology 4977**  
NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED MINORITY FOCUS PROGRAM

Period	Obligations	
10/04/1989-01/31/1993	FY93: \$0	TOTAL: \$62,000
Prin. Invest.	NASA Tech. Officer	CASE Category
J W BELCHER	HQ/F C OWENS	13-Physics

**NGT 00-090-231 Massachusetts Institute of Technology 4985**  
UNDERGRADUATE STUDENT RESEARCHERS (UMF) PROGRAM

Period	Obligations	
09/16/1993-08/14/1994	FY93: \$12,000	TOTAL: \$12,000
Prin. Invest.	NASA Tech. Officer	CASE Category
J JACKSON	HQ/D K RUSSELL	99-Multi-Discip

**NASA'S UNIVERSITY PROGRAM  
MASSACHUSETTS (Continued)**

**NAGW 1792** **Mt Holyoke College** **4986**  
SUMMER MATH PROGRAM FOR MINORITY GIRLS  
*Period* *Obligations*  
06/30/1989-11/30/1993 FY93: \$0 TOTAL: \$302,797  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J MORROW HQ/B L WHITE 29-Math/Computer, NEC  
C MORROW ....L WARREN

**NAG 3-1129** **Northeastern University** **4987**  
ANALYSIS AND NDE OF ADHESIVELY BONDED COMPOSITE JOINTS  
*Period* *Obligations*  
01/22/1990-06/30/1993 FY93: \$0 TOTAL: \$75,699  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
H N HASEMI LERC/A VARY 47-Materials Engr  
J N ROSSETTOS ....H E KAUTZ

**NGT 00-050-608** **Northeastern University** **4988**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period* *Obligations*  
07/06/1990-08/15/1993 FY93: \$0 TOTAL: \$66,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
M MATALON HQ/F C OWENS 21-Mathematics

**NGT 00-050-627** **Northeastern University** **4989**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period* *Obligations*  
07/24/1990-06/30/1993 FY93: \$20,557 TOTAL: \$63,743  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
P W VOORHEES HQ/F C OWENS 47-Materials Engr

**NAGW 2322** **Smith College** **4990**  
THE PHYSICAL AND CHEMICAL EVOLUTION OF PROSTELLAR DISKS  
*Period* *Obligations*  
12/14/1990-10/31/1991 FY93: \$0 TOTAL: \$44,172  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
S STAHLER HQ/J A NUTH, III 19-Phys Sci, NEC

**NAG 1-1523** **Tufts University** **4991**  
INTERFACING THE IFA 750 WITH LABVIEW NLPN 93-519  
*Period* *Obligations*  
06/28/1993-09/30/1993 FY93: \$8,164 TOTAL: \$8,164  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
C ROGERS LARC/M J WALSH 41-Aero Engr

**NAGW 2383** **Tufts University** **4992**  
OBSERVATIONS OF SOLAR ACTIVITY AT RADIO WAVELENGTHS IN SUPPORT OF NASA BALLOON AND SATELLITE MISSION  
*Period* *Obligations*  
03/18/1991-10/31/1993 FY93: \$178,000 TOTAL: \$396,788  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
K LANG HQ/W J WAGNER 13-Physics  
....K LANG

**NAGW 3577** **Tufts University** **4993**  
IMAGE RESTORATION AND FUNDAMENTAL LIMITATIONS OF H ST WF/PC IMAGERY  
*Period* *Obligations*  
05/05/1993-12/31/1993 FY93: \$45,000 TOTAL: \$45,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R A GONSALES HQ/R V STACHNIK 11-Astronomy  
....E J WEILER

**NGT 00-050-943** **Tufts University** **4994**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period* *Obligations*  
08/14/1992-08/31/1994 FY93: \$22,000 TOTAL: \$44,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
A SAIGAL LERC/F MONTEGANI 46-Mech Engr

**NAG 1-1261** **University of Lowell** **4995**  
CALCULATIONS OF LINE WIDTHS AND LINE SHIFTS FOR CH4 PERTURBED BY CH4 N2 AND O2  
*Period* *Obligations*  
04/12/1991-09/30/1993 FY93: \$0 TOTAL: \$191,093  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R R GAMACHE LARC/J G WELLS 31-Atmos Sci  
....J M RUSSELL

**NCA 2-698** **University of Lowell** **4996**  
PRESSURE BROADENING COEFFICIENTS FOR H2O PERTURBED BY CARBON DIOXIDE FROM EXPERIMENT AND THEORETICAL C  
*Period* *Obligations*  
03/20/1992-09/30/1992 FY93: \$0 TOTAL: \$22,405  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R R GAMACHE ARC/J B POLLACK 31-Atmos Sci

**NAG 1-1022** **University of Massachusetts - Amherst** **4997**  
GROUND-BASED MILLIMETER-WAVE MEASUREMENT OF OZONE IN THE MIDDLE ATMOSPHERE  
*Period* *Obligations*  
06/19/1989-03/31/1994 FY93: \$93,121 TOTAL: \$448,122  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
A D PARRISH LARC/B J CONNOR 31-Atmos Sci

**NAG 1-1148** **University of Massachusetts - Amherst** **4998**  
DIRECT SOLAR PUMPING OF SEMICONDUCTOR LASERS. A FEASIBILITY STUDY.  
*Period* *Obligations*  
05/23/1990-01/31/1992 FY93: \$1 TOTAL: \$28,225  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
N G ANDERSON LARC/E J CONWAY 13-Physics  
....G L SCHUSTER

**NAG 1-1318** **University of Massachusetts - Amherst** **4999**  
ADVANCED MICROWAVE RADIOMETER SYSTEM STUDIES INCREMENTALLY FUNDED THROUGH DECEMBER 31, 1991  
*Period* *Obligations*  
08/15/1991-02/14/1993 FY93: \$0 TOTAL: \$49,731  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
C T SWIFT LARC/R W LAWRENCE 45-Elec Engr  
R E MCINTOSH ....T G CAMPBELL

**NAG 2-578** **University of Massachusetts - Amherst** **5000**  
HIGH SPEED ALL OPTICAL NETWORKS  
*Period* *Obligations*  
05/24/1989-04/30/1992 FY93: \$0 TOTAL: \$402,998  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
I CHLAMTAC ARC/H LUM 45-Elec Engr  
A GANZ ....D MCKELLAR

**NASA'S UNIVERSITY PROGRAM  
MASSACHUSETTS (Continued)**

**NAG 2-595 University of Massachusetts - Amherst 5001**  
DESIGN AND EVALUATION OF SCHEDULING POLICIES FOR  
REAL-TIME AND NON-REAL-TIME TRAFFIC ...  
*Period* *Obligations*  
08/07/1989-12/31/1992 FY93: \$0 TOTAL: \$444,723  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J F KUROSE ARC/H LUM 22-Computer Science  
D TOWSLEY ....D MCKELLAR  
C CASSANDRAS

**NAG 3-1458 University of Massachusetts - Amherst 5002**  
MODEL-BASED FAULT DIAGNOSIS OF HELICOPTER GEARBOXES  
*Period* *Obligations*  
04/01/1993-03/24/1994 FY93: \$59,934 TOTAL: \$59,934  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
K DANA LERC/D G LEWICKI 46-Mech Engr  
....J J ZAKRAJSEK

**NAG 5-1288 University of Massachusetts - Amherst 5003**  
INFRARED EMISSION ASSOCIATED WITH MOLECULAR CLOUDS  
*Period* *Obligations*  
08/31/1989-09/30/1993 FY93: \$0 TOTAL: \$96,219  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R L SNELL GSFC/D WEST 11-Astronomy

**NAG 5-1354 University of Massachusetts - Amherst 5004**  
INDIAN MASS FUNCTIONS AND STAR-FORMING EFFICIENCIES  
*Period* *Obligations*  
04/10/1990-10/31/1992 FY93: \$0 TOTAL: \$100,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
S E STROM GSFC/D WEST 11-Astronomy

**NAG 5-1999 University of Massachusetts - Amherst 5005**  
DETERMINING THE LARGE SCALE STRUCTURE OF THE GALAXY  
*Period* *Obligations*  
07/01/1992-06/30/1994 FY93: \$34,400 TOTAL: \$70,900  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
M WEINBERG GSFC/D WEST 11-Astronomy

**NAG 5-2000 University of Massachusetts - Amherst 5006**  
CLUMPINESS AND SHOCK EFFECTS IN MON R2 CLOUD  
*Period* *Obligations*  
07/01/1989-03/30/1993 FY93: \$0 TOTAL: \$40,800  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
P F GOLDSMITH GSFC/D WEST 11-Astronomy

**NAG 9-291 University of Massachusetts - Amherst 5007**  
ADAPTAT TRANSIENT POSTURAL PERTURBATIONS  
*Period* *Obligations*  
04/01/1988-09/01/1992 FY93: \$1,621 TOTAL: \$144,567  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R O ANDRES JSC/F A KUTYNA 56-Medical Sciences

**NAGW 436 University of Massachusetts - Amherst 5008**  
BOUNDARY CONDITIONS FOR THE PALEOENVIRONMENT: CHEMICAL  
AND PHYSICAL PROCESSES IN THE PRE-SOLAR NEBUL  
*Period* *Obligations*  
02/15/1983-10/14/1993 FY93: \$50,164 TOTAL: \$561,073  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
W M IRVINE HQ/J D RUMMEL 32-Geological Sci  
F P SCHLOERB ....M AVERNER

**NAGW 559 University of Massachusetts - Amherst 5009**  
ALGORITHM DEVELOPMENT TO MEASURE SEA ICE FRACTION WITH  
MICROWAVE RADIOMETERS  
*Period* *Obligations*  
12/01/1983-09/30/1993 FY93: \$0 TOTAL: \$1,276,872  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
C T SWIFT HQ/R H THOMAS 33-Oceanography  
....W S WILSON

**NAGW 1112 University of Massachusetts - Amherst 5010**  
MICROWAVE REMOTE SENSING OF OCEANIC PROCESSES  
*Period* *Obligations*  
06/01/1987-11/30/1992 FY93: \$238,637 TOTAL: \$1,213,064  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R E MCINTOSH HQ/G S LAGERLOEF 33-Oceanography  
....W S WILSON

**NAGW 1417 University of Massachusetts - Amherst 5011**  
THE EVOLUTION OF YOUNG STELLAR OBJECT DISKS THEIR  
ENVIRONMENT  
*Period* *Obligations*  
09/22/1988-04/30/1994 FY93: \$30,000 TOTAL: \$171,486  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
S E STROM HQ/J H RAHE 11-Astronomy

**NAGW 1483 University of Massachusetts - Amherst 5012**  
STUDIES IN RADIATIVE TRANSFER  
*Period* *Obligations*  
11/02/1988-12/31/1993 FY93: \$68,816 TOTAL: \$333,988  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
F P SCHLOERB HQ/J H RAHE 11-Astronomy

**NAGW 1659 University of Massachusetts - Amherst 5013**  
FOCAL PLANE ARRAYS FOR SUBMILLIMETER WAVES USING  
*Period* *Obligations*  
02/01/1989-02/29/1992 FY93: \$0 TOTAL: \$401,674  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
K S YNGVESSON HQ/J K ALEXANDER 45-Elec Engr  
....D A HOLLAND

**NAGW 1909 University of Massachusetts - Amherst 5014**  
BRIGHT STAR CATALOG FOR THE NEAR-INFRARED  
*Period* *Obligations*  
12/14/1989-09/30/1991 FY93: \$0 TOTAL: \$103,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
S G KLEINMANN HQ/J WEISS 11-Astronomy  
S SCHNEIDER ....G RIEGLER

**NAGW 1935 University of Massachusetts - Amherst 5015**  
STUDY PHASE FOR A NEW 2 MICRON SKY SURVEY  
*Period* *Obligations*  
02/06/1990-12/31/1993 FY93: \$329,368 TOTAL: \$852,831  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
S G KLEINMANN HQ/G S LEVY 11-Astronomy

**NAGW 1965 University of Massachusetts - Amherst 5016**  
NAGW-1965/UNIV OF MASSACHUSETTS/PLANETARY TECTONIC S,  
AREAL GEOLOGY, AND GEOLOGICAL HISTORY  
*Period* *Obligations*  
01/24/1990-01/31/1994 FY93: \$36,000 TOTAL: \$169,192  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
G E MCGILL HQ/T A MAXWELL 32-Geological Sci

**NASA'S UNIVERSITY PROGRAM  
MASSACHUSETTS (Continued)**

**NAGW 1989 University of Massachusetts - Amherst 5017**  
MICROBIAL CONTRIBUTIONS TO THE PRECAMBRIAN EARTH  
*Period Obligations*  
04/27/1990-12/31/1993 FY93: \$80,001 TOTAL: \$359,401  
*Prin. Invest. NASA Tech. Officer CASE Category*  
L MARGOLIS HQ/J D RUMMELT 51-Biological Sci

**NAS 5-31757 University of Massachusetts - Amherst 5025**  
DEVELOPMENT OF SYNTHETIC APERTURE RADIOMETER  
*Period Obligations*  
12/16/1992-02/07/1995 FY93: \$125,000 TOTAL: \$125,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
C SWIFT GSFC/D LEVINE 46-Mech Engr

**NAGW 2223 University of Massachusetts - Amherst 5018**  
SOURCES AND AGES OF MARTIAN POLYGONAL TERRAIN MATERIALS  
*Period Obligations*  
02/22/1991-10/31/1994 FY93: \$21,280 TOTAL: \$64,235  
*Prin. Invest. NASA Tech. Officer CASE Category*  
G E MCGILL HQ/T A MAXWELL 32-Geological Sci

**NCC 2-658 University of Massachusetts - Amherst 5026**  
REPRESENTATION IN INCREMENTAL LEARNING  
*Period Obligations*  
03/13/1990-12/31/1992 FY93: \$0 TOTAL: \$231,036  
*Prin. Invest. NASA Tech. Officer CASE Category*  
P E UTGOFF ARC/P E FRIEDLAND 22-Computer Science  
...../P D LAIRD

**NAGW 2430 University of Massachusetts - Amherst 5019**  
DEVELOPMENT OF A 1036 HETERODYNE RECEIVER FOR ASTRONOMICAL APPLICATIONS  
*Period Obligations*  
07/31/1991-03/31/1994 FY93: \$50,000 TOTAL: \$150,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
N ERICKSON HQ/M BICAY 13-Physics

**NGT 00-030-101 University of Massachusetts - Amherst 5027**  
NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
11/16/1992-08/31/1994 FY93: \$44,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
A W PAYLOR HQ/G ASRAR 99-Multi-Discip  
...../J S THEON

**NAGW 2581 University of Massachusetts - Amherst 5020**  
VALIDATION OF ERS-1 ENVIRONMENTAL DATA PRODUCTS  
*Period Obligations*  
08/12/1991-04/30/1992 FY93: \$0 TOTAL: \$168,994  
*Prin. Invest. NASA Tech. Officer CASE Category*  
C T SWIFT HQ/R H THOMAS 39-Env Sci, NEC  
...../J S THEON

**NGT 00-030-149 University of Massachusetts - Amherst 5028**  
NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
10/30/1992-08/31/1994 FY93: \$44,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J D ISHAM HQ/G ASRAR 99-Multi-Discip  
...../D M BUTLER

**NAGW 3532 University of Massachusetts - Amherst 5021**  
STRUCTURAL EVOLUTION OF VENUSIAN PLAINS  
*Period Obligations*  
04/22/1993-05/31/1994 FY93: \$77,064 TOTAL: \$77,064  
*Prin. Invest. NASA Tech. Officer CASE Category*  
G E MCGILL HQ/J T BERGSTRALH 32-Geological Sci

**NGT 00-050-485 University of Massachusetts - Amherst 5029**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
08/10/1989-06/30/1992 FY93: \$0 TOTAL: \$62,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R E MCINTOSH HQ/F C OWENS 45-Elec Engr

**NAGW 3685 University of Massachusetts - Amherst 5022**  
RADAR ALTIMETRY STUDIES OVER THE GREENLAND ICE SHEET: EXPERIMENT AND ANALYSIS  
*Period Obligations*  
07/16/1993-05/31/1994 FY93: \$85,151 TOTAL: \$85,151  
*Prin. Invest. NASA Tech. Officer CASE Category*  
C T SWIFT HQ/R H THOMAS 31-Atmos Sci

**NGT 00-050-487 University of Massachusetts - Amherst 5030**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
08/31/1989-06/30/1992 FY93: \$0 TOTAL: \$62,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
C T SWIFT HQ/F C OWENS 19-Phys Sci, NEC

**NAG10-91 University of Massachusetts - Amherst 5023**  
MONITORING ETHYLENE AND AMMONIA GAS EMISSIONS FROM PLANTS CULTURED FOR A CELSS  
*Period Obligations*  
08/19/1991-03/29/1994 FY93: \$40,000 TOTAL: \$94,896  
*Prin. Invest. NASA Tech. Officer CASE Category*  
K A COREY KSC/W M KNOTT 43-Chem Engr

**NGT 00-050-606 University of Massachusetts - Amherst 5031**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
09/07/1990-06/30/1993 FY93: \$0 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
C T SWITT HQ/F C OWENS 45-Elec Engr

**NAS 5-30761 University of Massachusetts - Amherst 5024**  
DEVELOPMENT OF SYNTHETIC APERTURE RADIOMETER  
*Period Obligations*  
02/08/1990-02/07/1992 FY93: \$32,733 TOTAL: \$411,501  
*Prin. Invest. NASA Tech. Officer CASE Category*  
C T SWIFT GSFC/D LEVINE 41-Aero Engr

**NGT 00-050-772 University of Massachusetts - Amherst 5032**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
08/16/1991-06/30/1993 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R E MCINTOSH HQ/F C OWENS 45-Elec Engr

**NASA'S UNIVERSITY PROGRAM  
MASSACHUSETTS (Continued)**

**NGT 00-050-828 University of Massachusetts - Amherst 5033**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period* *Obligations*  
06/25/1991-06/30/1994 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
K M LAU HQ/F C OWENS 45-Elec Engr

**NGT 00-070-234 University of Massachusetts - Amherst 5034**  
NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
MINORITY FOCUS PROGRAM  
*Period* *Obligations*  
06/05/1991-06/30/1994 FY93: \$44,000 TOTAL: \$88,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
K M LAU HQ/F C OWENS 45-Elec Engr

**NGT 00-070-358 University of Massachusetts - Amherst 5035**  
NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
MINORITY FOCUS PROGRAM  
*Period* *Obligations*  
08/31/1993-08/31/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
P COHEN HQ/D K RUSSELL 22-Computer Science

**NAG 2-814 Wellesley College 5036**  
EARTH-BASED RING OCCULTATION  
*Period* *Obligations*  
12/01/1992-06/30/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R G FRENCH ARC/J N CUZZI 11-Astronomy

**NAGW 1368 Wellesley College 5037**  
DYNAMICS AND STRUCTURE OF PLANETARY RINGS  
*Period* *Obligations*  
07/11/1988-09/30/1993 FY93: \$47,000 TOTAL: \$228,500  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R G FRENCH HQ/J UNDERWOOD 32-Geological Sci  
...../J M BOYCE

**NAGW 2511 Wellesley College 5038**  
OCCULTATION STUDIES OF NEPTUNE'S RINGS AND ATMOSPHERE  
*Period* *Obligations*  
05/07/1991-06/30/1994 FY93: \$33,327 TOTAL: \$99,721  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
P G FRENCH HQ/W L QUAIDE 19-Phys Sci, NEC

**NAGW 3607 Wellesley College 5039**  
ANALYSIS OF VOYAGER OCCULTATION MEASUREMENTS OF THE  
ATMOSPHERES OF TITAN AND TRITON  
*Period* *Obligations*  
05/21/1993-12/31/1993 FY93: \$34,866 TOTAL: \$34,866  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
G STARK HQ/J T BERGSTRALH 19-Phys Sci, NEC

**NAG 5-1292 Wheaton College 5040**  
IUE SPECTRA OF PECULIAR PLANETARY NEBULAR  
*Period* *Obligations*  
09/08/1989-09/30/1993 FY93: \$0 TOTAL: \$64,200  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
T BARKER GSFC/D K WEST 11-Astronomy

**NAG 5-1888 Williams College 5041**  
DIFFUSE SOFT X-RAY EMISSION FROM THE DUMBBELL NEBU LA  
NGC 6853  
*Period* *Obligations*  
01/27/1992-08/31/1993 FY93: \$0 TOTAL: \$15,338  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
K B KWITTER GSFC/R PETRE 11-Astronomy

**NAGW 3266 Williams College 5042**  
NAGW-3266/WILLIAMS COLLEGE/INTERACTIVE AND OTHER AXAF  
MATERIALS PREPARATION  
*Period* *Obligations*  
11/09/1992-07/31/1993 FY93: \$5,000 TOTAL: \$5,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
P J PASACHOFF HQ/L S LAPIANA 11-Astronomy  
...../G P NEWTON

**NAG10-88 Williams College 5043**  
AMINE OXIDASE AND CALCIUM-DEPENDENT PEROXIDASE  
INVOLVEMENT IN DIFFERENTIAL GROWTH RESPONSES PLANT  
*Period* *Obligations*  
06/03/1991-06/30/1992 FY93: \$10 TOTAL: \$52,304  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R D SLO CUM KSC/W M KNOTT 51-Biological Sci

**NAG 2-768 Woods Hole Oceanographic Institution 5044**  
ANALYSIS OF CRUSTAL STRUCTURE OF VENUS UTILIZING R  
ESIDUAL LINE-OF-SIGHT(LOS) GRAVITY ACCELERATION..  
*Period* *Obligations*  
04/06/1992-08/31/1993 FY93: \$0 TOTAL: \$40,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
C O BOWIN ARC/L E LASHER 11-Astronomy  
...../R O FIMMEL

**NAGW 1666 Woods Hole Oceanographic Institution 5045**  
GULF STREAM UPPER OCEAN STUDIES  
*Period* *Obligations*  
02/23/1989-12/31/1993 FY93: \$70,880 TOTAL: \$466,544  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
K A KELLY HQ/G S LAGERLOEF 33-Oceanography  
T M JOYCE ...../W S WILSON

**NAGW 1675 Woods Hole Oceanographic Institution 5046**  
WAVETANK INVESTIGATION OF SHORT WIND WAVES AND  
SCATTOMETER MODEL  
*Period* *Obligations*  
03/29/1989-06/30/1992 FY93: \$0 TOTAL: \$160,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
W J PLANT HQ/G S LEGRLOEF 33-Oceanography

**NAGW 2431 Woods Hole Oceanographic Institution 5047**  
BIOGEOCHEMICAL FLUXES AT THE OCEAN/ATMOSPHERE INTE  
RFACE  
*Period* *Obligations*  
04/25/1991-12/31/1993 FY93: \$721,600 TOTAL: \$2,468,800  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
P G BREWER HQ/B MITCHELL 33-Oceanography



**NASA'S UNIVERSITY PROGRAM  
MASSACHUSETTS (Continued)**

**NAGW 2783 Woods Hole Oceanographic Institution 5048**  
GAS EXCHANGE IN WETLANDS; CONTROLS AND REMOTE SENSING

Period	Obligations	
12/02/1991-03/31/1993	FY93: \$0	TOTAL: \$100,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
J W DACEY	HQ/M M AVERNER	39-Env Sci, NEC

**NAG 1-1476 Worcester Polytechnic Institute 5055**  
ENGINEERING DESIGN OF SUB-MICRON TOPOGRAPHICS FOR SIMULTANEOUSLY ADHERENT AND REFLECTIVE METAL-POLY

Period	Obligations	
01/15/1993-01/12/1994	FY93: \$20,000	TOTAL: \$20,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
C A BROWN	LARC/D M STOAKLEY	46-Mech Engr
	....A K ST. CLAIR	

**NAGW 3648 Woods Hole Oceanographic Institution 5049**  
A COUPLED BIOLOGICAL-PHYSICAL MODEL FOR STUDYING ANNUAL AND INTER-ANNUAL VARIABILITY IN SEAWIFS

Period	Obligations	
07/14/1993-05/31/1994	FY93: \$24,765	TOTAL: \$24,765
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
D M GLOVER	HQ/R MURPHY	33-Oceanography

**NAG 5-1138 Worcester Polytechnic Institute 5056**  
STUDY OF A 2-DIMENSIONAL FAST FOURIER TRANSFORM MACHINE

Period	Obligations	
06/01/1989-02/28/1994	FY93: \$0	TOTAL: \$15,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
F U BORIAKOFF	GSFC/G CHIN	22-Computer Science
	....J FLOREZ	

**NAS 5-30921 Woods Hole Oceanographic Institution 5050**  
EOS SYNTHETIC APERTURE RADAR STUDY

Period	Obligations	
03/27/1990-12/31/1991	FY93: \$0	TOTAL: \$30,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
W J PLANT	GSFC/G SOFFEN	42-Astro Engr

**NAGW 2234 Worcester Polytechnic Institute 5057**  
NAGW-2234/WORCESTER POLYTECHNIC INST./NITRATES, PHOTOLYTIC PROCESSES AND THE PH AT THE MARTIAN

Period	Obligations	
03/11/1991-09/30/1993	FY93: \$30,090	TOTAL: \$90,270
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
R C PLUMB	HQ/J M BOYCE	32-Geological Sci

**NGT 00-030-006 Woods Hole Oceanographic Institution 5051**  
NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM

Period	Obligations	
10/02/1990-08/31/1993	FY93: \$0	TOTAL: \$66,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
H L BRYDEN	HQ/G ASRAR	33-Oceanography

**NCC 3-312 Worcester Polytechnic Institute 5058**  
DESIGN AND DEVELOPMENT OF EXPERIMENTAL FACILITIES FOR SHORT DURATION, LOW GRAVITY COMB AND FIRE EXPER

Period	Obligations	
05/28/1993-09/09/1993	FY93: \$11,794	TOTAL: \$11,794
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
V MOTEVALLI	LERC/H D ROSS	46-Mech Engr

**NGT 00-030-096 Woods Hole Oceanographic Institution 5052**  
NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM

Period	Obligations	
08/21/1992-08/31/1993	FY93: \$0	TOTAL: \$22,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
C MAURITZEN	HQ/G ASRAR	33-Oceanography
C WUNSCH	....D M BUTLER	

**NGT 00-050-773 Worcester Polytechnic Institute 5059**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM

Period	Obligations	
06/25/1991-06/30/1994	FY93: \$22,000	TOTAL: \$66,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
A ALEXANDROU	HQ/F C OWENS	46-Mech Engr

**NGT 00-050-456 Woods Hole Oceanographic Institution 5053**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM

Period	Obligations	
08/10/1989-06/30/1992	FY93: \$281	TOTAL: \$61,719
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
J W DACEY	HQ/F C OWENS	33-Oceanography

**NGT 00-050-827 Worcester Polytechnic Institute 5060**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM

Period	Obligations	
08/16/1991-08/21/1994	FY93: \$22,000	TOTAL: \$66,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
R D SISSON	HQ/F C OWENS	47-Materials Engr

**NAG 1-964 Worcester Polytechnic Institute 5054**  
PROPOSED RESEARCH FOR PERFORMING THE VALIDATION OF INTELLIGENT SYSTEMS

Period	Obligations	
01/24/1989-01/23/1992	FY93: \$1	TOTAL: \$410,400
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
P E GREEN	LARC/S C JOHNSON	22-Computer Science
L A BECKER		
R J DUCKWORTH		

**NGT 00-051-107 Worcester Polytechnic Institute 5061**  
GRADUATE STUDENT RESEARCHERS PROGRAM

Period	Obligations	
05/28/1993-06/30/1994	FY93: \$22,000	TOTAL: \$22,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
C A BROWN	LARC/E PRIOR	46-Mech Engr

**NASA'S UNIVERSITY PROGRAM**  
**MICHIGAN (Continued)**

**NAGW 3214**                      **Michigan State University**                      **5076**  
 7TH NATIONAL CONFERENCE FOR BLACK PHYSICS STUDENTS  
*Period*    *Obligations*  
 09/17/1992-09/30/1993                      FY93: \$0                      TOTAL: \$32,886  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 G M CRAWLEY                      HQ/J K ALEXANDER                      13-Physics  
    ....D A HOLLAND

**NAG10-67**                      **Michigan State University**                      **5077**  
 CONTINUATION OF ATTEMPT TO LOCALIZE GRAVITY TRANS-  
 DUCING MECHANISM OF PLANTS  
*Period*    *Obligations*  
 11/30/1989-11/29/1992                      FY93: \$0                      TOTAL: \$154,999  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 R S BANDURSKI                      KSC/W M KNOTT                      99-Multi-Discip

**NCC 1-175**                      **Michigan State University**                      **5078**  
 DEVELOPING A DYNAMIC MODEL AND SIMULATION PROGRAM FOR  
 THE ADVANCED AEROELASTIC ROTOR EXPERIMENT SYS  
*Period*    *Obligations*  
 03/31/1993-03/31/1994                      FY93: \$56,665                      TOTAL: \$56,665  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 P M FITZSIMONS                      LARC/P H MIRICK                      41-Aero Engr  
    ....W T YEAGER

**NGT 00-050-791**                      **Michigan State University**                      **5079**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period*    *Obligations*  
 06/28/1991-06/30/1994                      FY93: \$22,000                      TOTAL: \$66,000  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 K L POFF                      HQ/F C OWENS                      55-Agriculture Sci

**NGT 00-050-831**                      **Michigan State University**                      **5080**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period*    *Obligations*  
 07/01/1991-06/30/1994                      FY93: \$22,000                      TOTAL: \$66,000  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 M G KANATZIDIS                      HQ/F C OWENS                      12-Chemistry

**NGT 00-070-316**                      **Michigan State University**                      **5081**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
 MINORITY FOCUS PROGRAM  
*Period*    *Obligations*  
 06/29/1993-06/30/1994                      FY93: \$22,000                      TOTAL: \$22,000  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 M KEMP                      HQ/D K RUSSELL                      99-Multi-Discip  
 M CRIMP

**NAG 2-757**                      **Michigan Technological University**                      **5082**  
 APPLICATIONS AND DEVELOPMENT OF COMMUNICATION MODELS  
 FOR THE TOUCHSTONE GAMMA AND DELTA PROTOTYPES  
*Period*    *Obligations*  
 02/12/1992-06/30/1993                      FY93: \$0                      TOTAL: \$43,573  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 S R SEIDEL                      ARC/E BARSZCZ                      22-Computer Science

**NAG 2-820**                      **Michigan Technological University**                      **5083**  
 DEVELOPMENT OF A RATIONAL MODELING APPROACH FOR TH E  
 DESIGN, AND OPTIMIZATION OF THE MULTIFILTRATION..  
*Period*    *Obligations*  
 12/15/1992-12/31/1993                      FY93: \$79,869                      TOTAL: \$79,869  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 D W HAND                      ARC/J E FINN                      43-Chem Engr  
 J C CRITTENDEN                      ....E L FORCE

**NAG 3-519**                      **Michigan Technological University**                      **5084**  
 RAMAN STRUCTURAL STUDIES OF THE NICKEL ELECTRODE  
*Period*    *Obligations*  
 01/18/1984-11/28/1991                      FY93: \$0                      TOTAL: \$210,013  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 B C CORNILSEN                      LERC/M A REID                      49-Engr, NEC  
    ....P O'DONNELL

**NAG 3-560**                      **Michigan Technological University**                      **5085**  
 FLUID FLOW IN PARTLY SOLIDIFIED SYSTEMS  
*Period*    *Obligations*  
 06/06/1984-02/10/1994                      FY93: \$0                      TOTAL: \$550,198  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 A HELLAWELL                      LERC/T K GLASGOW                      47-Materials Engr  
 J R SARAZIN                      ....H GRAY

**NAG 3-1109**                      **Michigan Technological University**                      **5086**  
 NUMERICAL STUDY OF DILUTION JET MIXING OF COMBUSTO RS  
*Period*    *Obligations*  
 12/21/1989-12/17/1993                      FY93: \$77,000                      TOTAL: \$284,000  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 S L YANG                      LERC/H L NGUYEN                      13-Physics

**NAG 3-1462**                      **Michigan Technological University**                      **5087**  
 THERMOSOLUTAL CONVECTION AND PARTICULATE TRANSPORT D  
 URING ALLOY SOLIDIFICATION  
*Period*    *Obligations*  
 03/04/1993-02/28/1994                      FY93: \$50,760                      TOTAL: \$50,760  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 A HELLAWELL                      LERC/A CHAIT                      47-Materials Engr

**NAG 5-1838**                      **Michigan Technological University**                      **5088**  
 GROUND TRUTH SPECTROMETRY AND IMAGERY OF ERUPTION  
 CLOUDS TO MAXIMIZE UTILITY OF SATELLITE IMAGERY  
*Period*    *Obligations*  
 11/26/1991-11/30/1993                      FY93: \$36,000                      TOTAL: \$126,000  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 W I ROSE                      GSFC/L S WALTER                      32-Geological Sci

**NAG 5-1873**                      **Michigan Technological University**                      **5089**  
 COMPARISON OF AVHRR AND TOMS IMAGERY OF VOLCANIC C  
 LOUDS FROM PINATUBO AND HUDSON VOLCANOES  
*Period*    *Obligations*  
 01/23/1992-01/31/1993                      FY93: \$0                      TOTAL: \$30,835  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 W I ROSE                      GSFC/A J KRUEGER                      31-Atmos Sci

**NASA'S UNIVERSITY PROGRAM**  
**MICHIGAN (Continued)**

**NAG 5-2324 Michigan Technological University 5090**  
 COMPARISON OF AVHRR AND TOMS IMAGERY OF VOLCANIC CLOUDS  

Period	Obligations	
07/14/1993-07/31/1994	FY93: \$30,358	TOTAL: \$30,358
Prin. Invest.	NASA Tech. Officer	CASE Category
W I ROSE	GSFC/A J KRUEGER	31-Atmos Sci

**NAGW 2974 Michigan Technological University 5091**  
 MODELLING OF COLLISION INDUCED ABSORPTION SPECTRA OF N2-CH4 AND CO2-CO2  

Period	Obligations	
03/20/1992-03/31/1993	FY93: \$0	TOTAL: \$41,339
Prin. Invest.	NASA Tech. Officer	CASE Category
A BORYSOW	HQ/H C BRINTON	11-Astronomy

**NAGW 3390 Michigan Technological University 5092**  
 MODELING OF COLLISION INDUCED ABSORPTION SPECTRA OF CO2-CO2 PAIRS FOR PLANETARY ATMOSPHERE OF VENUS  

Period	Obligations	
03/09/1993-03/31/1994	FY93: \$41,002	TOTAL: \$41,002
Prin. Invest.	NASA Tech. Officer	CASE Category
A BORYSOW	HQ/H C BRINTON	19-Phys Sci, NEC

**NCC 1-145 Michigan Technological University 5093**  
 ACOUSTIC PROPAGATION IN FORESTED AREAS  

Period	Obligations	
09/17/1990-06/30/1994	FY93: \$0	TOTAL: \$74,000
Prin. Invest.	NASA Tech. Officer	CASE Category
J C ROGERS	LARC/A W MUELLER	13-Physics
F J PELON	..../D R HOAD	

**NCC 3-183 Michigan Technological University 5094**  
 CAD REPRESENTATION AND MANIPULATION OF TERNARY AND QUATERNARY PHASE DIAGRAMS  

Period	Obligations	
09/27/1990-12/10/1992	FY93: \$1,851	TOTAL: \$2,349
Prin. Invest.	NASA Tech. Officer	CASE Category
J D DELA'O	LERC/T K GLASGOW	47-Materials Engr

**NGT 00-030-061 Michigan Technological University 5095**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  

Period	Obligations	
09/23/1991-08/31/1994	FY93: \$22,000	TOTAL: \$66,000
Prin. Invest.	NASA Tech. Officer	CASE Category
J M KWIATKOWSKI	HQ/D M BUTLER	39-Env Sci, NEC
A KOSTINSKI	..../G S WILSON	

**NGT 00-030-128 Michigan Technological University 5096**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  

Period	Obligations	
11/02/1992-08/31/1994	FY93: \$44,000	TOTAL: \$44,000
Prin. Invest.	NASA Tech. Officer	CASE Category
A N PILANT	HQ/G ASRAR	99-Multi-Discip
	..../D M BUTLER	

**NGT 00-030-174 Michigan Technological University 5097**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  

Period	Obligations	
08/27/1993-08/31/1994	FY93: \$22,000	TOTAL: \$22,000
Prin. Invest.	NASA Tech. Officer	CASE Category
W I ROSE	HQ/G ASRAR	32-Geological Sci
	..../D M BUTLER	

**NGT 00-050-650 Michigan Technological University 5098**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  

Period	Obligations	
07/24/1990-09/30/1993	FY93: \$4,344	TOTAL: \$69,032
Prin. Invest.	NASA Tech. Officer	CASE Category
I MISKIOGLU	HQ/F C OWENS	46-Mech Engr

**NGT 00-051-024 Michigan Technological University 5099**  
 GRADUATE STUDENT RESEARCHERS PROGRAM  

Period	Obligations	
07/14/1993-08/31/1994	FY93: \$22,000	TOTAL: \$22,000
Prin. Invest.	NASA Tech. Officer	CASE Category
W C KERFOOT	ARC/M MOORE	51-Biological Sci

**NGT 00-070-154 Michigan Technological University 5100**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED MINORITY FOCUS PROGRAM  

Period	Obligations	
08/11/1989-10/31/1992	FY93: \$0	TOTAL: \$62,000
Prin. Invest.	NASA Tech. Officer	CASE Category
A HELLAWELL	HQ/F C OWENS	47-Materials Engr

**NAGW 2010 Saginaw Valley State University 5101**  
 EARTH SCIENCE INFORMATION: PLANNING FOR THE INTEGRATION AND USE OF GLOBAL CHANGE DATA  

Period	Obligations	
03/23/1990-04/30/1993	FY93: \$0	TOTAL: \$12,900,000
Prin. Invest.	NASA Tech. Officer	CASE Category
R S YIEN	HQ/D M BUTLER	39-Env Sci, NEC
	..../E NJOKU	

**NAG 1-296 University of Michigan - Ann Arbor 5102**  
 THE PERFORMANCE AND EVALUATION OF REAL-TIME MULTICOMPUTER CONTROL SYSTEMS  

Period	Obligations	
07/26/1982-08/31/1992	FY93: \$0	TOTAL: \$953,337
Prin. Invest.	NASA Tech. Officer	CASE Category
K G SHIN	LARC/R W BUTLER	22-Computer Science
B K KIM	..../A O LUPTON	

**NAG 1-492 University of Michigan - Ann Arbor 5103**  
 DESIGN AND EVALUATION OF FLIGHT CRUCIAL CONTROL COMPUTERS  

Period	Obligations	
07/09/1984-12/31/1993	FY93: \$0	TOTAL: \$252,760
Prin. Invest.	NASA Tech. Officer	CASE Category
K G SHIN	LARC/R W BUTLER	22-Computer Science
	..../G B FINELLI	

**NAG 1-869 University of Michigan - Ann Arbor 5104**  
 AN ADAPTIVE MULTI-GRID CODE FOR FLUID DYNAMICS BASED ON GENUINELY MULTI-DIMENSIONAL CONCEPTS  

Period	Obligations	
03/25/1988-11/30/1993	FY93: \$75,873	TOTAL: \$417,542
Prin. Invest.	NASA Tech. Officer	CASE Category
B VAN LEER	LARC/J L THOMAS	21-Mathematics
K POWELL	..../J C SOUTH JR.	

**NASA'S UNIVERSITY PROGRAM**  
**MICHIGAN (Continued)**

**NAG 1-1220 University of Michigan - Ann Arbor 5105**  
 STUDY OF DESIGN FOR VALIDATION IN DISTRIBUTED  
 FAULT-TOLERANT SYSTEMS  
*Period Obligations*  
 02/14/1991-02/12/1994 FY93: \$149,873 TOTAL: \$359,704  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 K G SHIN LARC/A L WHITE 22-Computer Science

**NAG 1-1465 University of Michigan - Ann Arbor 5112**  
 GLOBAL TROPOSPHERIC EXPERIMENT AT THE HONG KONG  
 ATMOSPHERIC CHEMISTRY MEASUREMENT STATION  
*Period Obligations*  
 12/07/1992-12/06/1994 FY93: \$61,285 TOTAL: \$61,285  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M A CARROLL LARC/J M HOELL 31-Atmos Sci  
 ....R J BENDURA

**NAG 1-1290 University of Michigan - Ann Arbor 5106**  
 ANALYSIS OF UNSTEADY FLOW IN A SCRAMJET  
*Period Obligations*  
 06/26/1991-12/31/1993 FY93: \$50,000 TOTAL: \$168,785  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 T C ADAMSON LARC/R W GUY 41-Aero Engr  
 W H WOODRUFF ....G Y ANDERSON

**NAG 1-1478 University of Michigan - Ann Arbor 5113**  
 ANALYSIS OF CONFORMAL ANTENNAS IN COMPOSITE SURFACES  
 NLPN 92-1107  
*Period Obligations*  
 02/05/1993-02/03/1994 FY93: \$50,000 TOTAL: \$50,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J L VOLAKIS LARC/F B BECK 45-Elec Engr

**NAG 1-1315 University of Michigan - Ann Arbor 5107**  
 CORRELATIVE MEASUREMENT SUPPORT OF THE UPPER  
 ATMOSPHERE RESEARCH SATELLITE (UARS)  
*Period Obligations*  
 07/17/1991-01/14/1994 FY93: \$100,000 TOTAL: \$260,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 T L KILLEEN LARC/J G WELLS 31-Atmos Sci  
 F G MCCORMAC  
 R M JOHNSON

**NAG 1-1493 University of Michigan - Ann Arbor 5114**  
 DEVELOPMENT AND OPERATION OF A SOFTWARE FAULT  
 INJECTOR  
*Period Obligations*  
 04/30/1993-10/31/1994 FY93: \$93,986 TOTAL: \$93,986  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 K G SHIN LARC/A L WHITE 22-Computer Science

**NAG 1-1317 University of Michigan - Ann Arbor 5108**  
 SUPERPLASTIC FORMABILITY OF PARTICULATE REINFORCED AL-LI  
 ALLOY D  
*Period Obligations*  
 07/12/1991-10/14/1993 FY93: \$50,567 TOTAL: \$106,832  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A GHOSH LARC/W D BREWER 47-Materials Engr  
 ....D M ROYSTER

**NAG 1-1514 University of Michigan - Ann Arbor 5115**  
 PROPOSAL FOR RESEARCH INTO COMPUTATIONAL ACOUSTICS  
 NLPN 93-425  
*Period Obligations*  
 05/28/1993-05/31/1994 FY93: \$94,140 TOTAL: \$94,140  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 P L ROE LARC/K S BRENTNER 41-Aero Engr

**NAG 1-1331 University of Michigan - Ann Arbor 5109**  
 HIGH RESOLUTION DOPPLER LIDAR MEASUREMENTS - FDP  
*Period Obligations*  
 09/24/1991-09/19/1993 FY93: \$0 TOTAL: \$150,322  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 V J ABREU LARC/G L MADDREA 13-Physics  
 P B MAYS ....L R POOLE  
 A K SMITH

**NAG 1-1544 University of Michigan - Ann Arbor 5116**  
 A FOUR CHANNEL NO/O3 CHEMILUMINESCENCE INSTRUMENT FOR  
 SIMULTANEOUS AIRBORNE MEASUREMENTS OF NITRIC  
*Period Obligations*  
 09/28/1993-09/27/1994 FY93: \$358,764 TOTAL: \$358,764  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M A CARROLL LARC/G L GREGORY 31-Atmos Sci  
 ....J M HOELL JR.

**NAG 1-1410 University of Michigan - Ann Arbor 5110**  
 ELECTORHEOLOGY FOR SMART LANDING GEAR - FDP  
 INCREMENTALLY FUNDED THROUGH DECEMBER 31, 1992  
*Period Obligations*  
 03/20/1992-03/31/1993 FY93: \$22,385 TOTAL: \$67,153  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R D ERVIN LARC/W E HOWELL 46-Mech Engr  
 Z LOU ....R H DAUGHERTY  
 F E FILSKO

**NAG 2-488 University of Michigan - Ann Arbor 5117**  
 INTERDISCIPLINARY SCIENTIST ON PIONEER VENUS MISSI  
*Period Obligations*  
 01/01/1988-12/31/1993 FY93: \$150,000 TOTAL: \$924,991  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 T DONAHUE ARC/L E LASHER 11-Astronomy  
 ....R A CRAIG

**NAG 1-1419 University of Michigan - Ann Arbor 5111**  
 EFFICIENT REORIENTATION MANEUVERS FOR SPACECRAFT W ITH  
 MULTIPLE ARTICULATED PAYLOADS  
*Period Obligations*  
 03/09/1992-06/03/1993 FY93: \$1 TOTAL: \$54,801  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 N H MCCLAMROCH LARC/S M JOSHI 42-Astro Engr

**NAG 2-491 University of Michigan - Ann Arbor 5118**  
 INTERDISCIPLINARY SCIENTIST - PIONEER VENUS MISSIO  
*Period Obligations*  
 10/01/1987-09/30/1994 FY93: \$155,000 TOTAL: \$953,077  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A NAGY ARC/L E LASHER 11-Astronomy  
 ....R O FIMMEL

**NASA'S UNIVERSITY PROGRAM**  
**MICHIGAN (Continued)**

**NAG 2-541 University of Michigan - Ann Arbor 5119**  
 A NEW TECHNIQUE FOR SIMULATING COMPOSITE MATERIAL ITS  
 APPLICATION TO ELECTROMAGNETICS IN CONJUNCTION

Period	Obligations	
09/01/1988-09/30/1992	FY93: \$0	TOTAL: \$310,000
Prin. Invest.	NASA Tech. Officer	CASE Category
J L VOLAKIS	ARC/A C WOO	45-Elec Engr

**NAG 3-1160 University of Michigan - Ann Arbor 5126**  
 MATHEMATICAL THEORY OF THE OPT CRIT METHOD IN STRU CT  
 OPT FOR ENGINE COMPONENT DESIGN

Period	Obligations	
04/04/1990-03/31/1992	FY93: \$859	TOTAL: \$72,895
Prin. Invest.	NASA Tech. Officer	CASE Category
N KIKUCHI	LERC/L BERKE	41-Aero Engr
J E TAYLOR		

**NAG 2-635 University of Michigan - Ann Arbor 5120**  
 PHIST DESIGN AND DEVELOPMENT STUDY

Period	Obligations	
05/17/1990-12/31/1992	FY93: \$0	TOTAL: \$110,937
Prin. Invest.	NASA Tech. Officer	CASE Category
C W CLIPSON	ARC/R L HARRISON	42-Astro Engr

**NAG 3-1163 University of Michigan - Ann Arbor 5127**  
 EFFECTS OF MISTUNING ON THE FORCED RESPONSE OF TUR  
 BOMACHINERY ROTORS

Period	Obligations	
04/17/1990-12/31/1993	FY93: \$35,782	TOTAL: \$111,721
Prin. Invest.	NASA Tech. Officer	CASE Category
C PIERRE	LERC/G L STEFKO	46-Mech Engr
	....L J KIRALY	

**NAG 2-644 University of Michigan - Ann Arbor 5121**  
 CONTINUED PROCESSING AND ANALYSIS OF THE DATA FROM  
 THE PIONEER VENUS ORBITER ELECTRON TEMPERATURE ..

Period	Obligations	
06/20/1990-09/30/1993	FY93: \$0	TOTAL: \$586,911
Prin. Invest.	NASA Tech. Officer	CASE Category
L H BRACE	ARC/L E LASHER	11-Astronomy
	....R O FIMMEL	

**NAG 3-1245 University of Michigan - Ann Arbor 5128**  
 THE INVESTIGATION OF LAMINAR JET DIFFUSION FLAMES

Period	Obligations	
03/01/1991-03/14/1994	FY93: \$174,491	TOTAL: \$395,524
Prin. Invest.	NASA Tech. Officer	CASE Category
G M FAETH	LERC/D STOCKER	49-Engr, NEC

**NAG 2-740 University of Michigan - Ann Arbor 5122**  
 PRELIMINARY DESIGN RESEARCH ON A SMALL SATELLITE  
 SYNTHETIC APERTURE RADAR FOR MALARIA CONTROL

Period	Obligations	
11/20/1991-12/31/1992	FY93: \$0	TOTAL: \$31,629
Prin. Invest.	NASA Tech. Officer	CASE Category
J F VESECKY	ARC/C E DULLER	39-Env Sci, NEC
J J SLAWSKI	....J G LAWLESS	

**NAG 3-1310 University of Michigan - Ann Arbor 5129**  
 A PRELIMINARY STUDY TO FORCED CONVECTION BOILING I N  
 MICROGRAVITY

Period	Obligations	
12/05/1991-01/31/1994	FY93: \$51,480	TOTAL: \$101,355
Prin. Invest.	NASA Tech. Officer	CASE Category
H MERTE	LERC/J A PLATT	46-Mech Engr
	....R W VERNON	

**NAG 2-866 University of Michigan - Ann Arbor 5123**  
 DEVELOPMENT AND PARALLELIZATION OF THE FINITE ELEMEN T  
 METHOD WITH MIXED TERMINATION SCHEMES

Period	Obligations	
08/11/1993-10/31/1994	FY93: \$150,000	TOTAL: \$150,000
Prin. Invest.	NASA Tech. Officer	CASE Category
J L VOLAKIS	ARC/A C WOO	45-Elec Engr
	....M J SCHUH	

**NAG 3-1317 University of Michigan - Ann Arbor 5130**  
 COMPUTATIONAL STUDIES OF DROP COLLISION AND COALESCE  
 NCE

Period	Obligations	
01/24/1992-05/03/1994	FY93: \$67,680	TOTAL: \$125,980
Prin. Invest.	NASA Tech. Officer	CASE Category
G TRYGGVASON	LERC/D A JACQMIN	46-Mech Engr

**NAG 3-988 University of Michigan - Ann Arbor 5124**  
 STUDIES ON HIGH-PERFORMANCE ELECTRONIC DEVICES AT  
 CRYOGENIC TEMPERATURES (77K)

Period	Obligations	
02/01/1989-01/21/1994	FY93: \$75,000	TOTAL: \$398,916
Prin. Invest.	NASA Tech. Officer	CASE Category
P K BHATTACHARGA	LERC/S A ALTEROVITZ	45-Elec Engr

**NAG 3-1460 University of Michigan - Ann Arbor 5131**  
 AN EXPERIMENTAL AND THEORETICAL STUDY OF RADIATIVE E  
 XTINCTION OF DIFFUSION FLAMES

Period	Obligations	
02/18/1993-02/09/1994	FY93: \$65,000	TOTAL: \$65,000
Prin. Invest.	NASA Tech. Officer	CASE Category
A ATREYA	LERC/K R SACKSTEDER	49-Engr, NEC

**NAG 3-1133 University of Michigan - Ann Arbor 5125**  
 DROPLET EVAPORATION UNDER MICROGRAVITY

Period	Obligations	
01/31/1990-04/15/1994	FY93: \$40,000	TOTAL: \$170,660
Prin. Invest.	NASA Tech. Officer	CASE Category
V S ARPACI	LERC/A T CHAI	19-Phys Sci, NEC

**NAG 3-1504 University of Michigan - Ann Arbor 5132**  
 A PRELIMINARY INVESTIGATION OF HALL THRUSTER TECHN  
 OLOGY

Period	Obligations	
06/10/1993-05/31/1994	FY93: \$50,494	TOTAL: \$50,494
Prin. Invest.	NASA Tech. Officer	CASE Category
A D GALLIMORE	LERC/F M CURREN	11-Astronomy

**NASA'S UNIVERSITY PROGRAM**  
**MICHIGAN (Continued)**

**NAG 5-465 University of Michigan - Ann Arbor 5133**  
 DYNAMIC AND THERMODYNAMIC ANALYSES OF THE NEUTRAL  
 UPPER ATMOSPHERE  
*Period* *Obligations*  
 10/01/1984-01/31/1993 FY93: \$0 TOTAL: \$2,627,712  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 P B HAYS GSFC/G D BULLOCK 19-Phys Sci, NEC  
 T L KILLEEN ....R HOFFMAN

**NAG 5-472 University of Michigan - Ann Arbor 5134**  
 DYNAMICS EXPLORER INVESTIGATIONS  
*Period* *Obligations*  
 10/01/1984-01/31/1994 FY93: \$25,013 TOTAL: \$887,857  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 A F NAGY GSFC/G D BULLOCK 19-Phys Sci, NEC  
 ....R A HOFFMAN

**NAG 5-653 University of Michigan - Ann Arbor 5135**  
 SOUNDING ROCKET SPECTROMETER TO MEASURE DAPPLER  
*Period* *Obligations*  
 01/01/1989-12/31/1993 FY93: \$167,870 TOTAL: \$538,270  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 J T CLARKE GSFC/L J EARLY 13-Physics  
 ....R H PLESS

**NAG 5-662 University of Michigan - Ann Arbor 5136**  
 REMOTE MEASUREMENT OF UPPER ATMOSPHERIC DENSITY AND  
 TEMPERATURE  
*Period* *Obligations*  
 03/28/1990-03/31/1993 FY93: \$0 TOTAL: \$72,734  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 J H YEE WFF/L J EARLY 13-Physics  
 ....R H PLESS

**NAG 5-1030 University of Michigan - Ann Arbor 5137**  
 ULTRAVIOLET OBSERVATIONS OF THE AURORA AND  
 ELECTROGLOW FOR NEPTUNE  
*Period* *Obligations*  
 01/01/1988-01/31/1994 FY93: \$5,000 TOTAL: \$170,034  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 T J CLARKE GSFC/D WEST 11-Astronomy

**NAG 5-1333 University of Michigan - Ann Arbor 5138**  
 ANALYSIS OF IUE OBSERVATIONS OF HYDROGEN IN COMETS  
*Period* *Obligations*  
 02/27/1990-03/14/1992 FY93: \$0 TOTAL: \$65,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 M COMBI GSFC/D WEST 11-Astronomy

**NAG 5-1419 University of Michigan - Ann Arbor 5139**  
 ELEMENTS IN SHARP-LINED EARLY TYPE STARS  
*Period* *Obligations*  
 08/07/1990-08/31/1992 FY93: \$0 TOTAL: \$17,647  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 C R COWLEY GSFC/D WEST 11-Astronomy

**NAG 5-1500 University of Michigan - Ann Arbor 5140**  
 THEORETICAL STUDIES OF NON-EQUILIBRIUM SPACE PLASMA  
 FLOWS  
*Period* *Obligations*  
 03/01/1991-04/30/1994 FY93: \$115,000 TOTAL: \$575,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 T I GOMBOSI GSFC/T J BIRMINGHAM 13-Physics

**NAG 5-1502 University of Michigan - Ann Arbor 5141**  
 AN ASSESSMENT OF TWILIGHT AIRGLOW INVERSION PROCEDURES  
 USING ATMOSPHERE EXPLORER OBSERVATIONS  
*Period* *Obligations*  
 03/27/1991-04/14/1993 FY93: \$0 TOTAL: \$40,697  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 I C MCDADE GSFC/G D BULLOCK 19-Phys Sci, NEC

**NAG 5-1542 University of Michigan - Ann Arbor 5142**  
 RING CURRENT ENERGY TRANSFER TO THE THERMAL PLASMA  
*Period* *Obligations*  
 04/17/1991-04/30/1993 FY93: \$0 TOTAL: \$109,780  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 J U KOZYRA GSFC/G D BULLOCK 19-Phys Sci, NEC

**NAG 5-1591 University of Michigan - Ann Arbor 5143**  
 ASTROPHYSICAL SOURCES OF VERY HIGH AND ULTRA HIGH  
 ENERGY GAMMA RAYS  
*Period* *Obligations*  
 05/09/1991-11/14/1992 FY93: \$0 TOTAL: \$30,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 C W AKERLOF GSFC/J NORRIS 11-Astronomy  
 ....D A KNIFFEN

**NAG 5-1622 University of Michigan - Ann Arbor 5144**  
 RESEARCH RELATIVE TO THE TIMED SCIENCE DEFINITION  
*Period* *Obligations*  
 06/07/1991-07/31/1992 FY93: \$0 TOTAL: \$174,595  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 T L KILLEEN GSFC/J O'BRIEN 13-Physics

**NAG 5-1658 University of Michigan - Ann Arbor 5145**  
 X-RAY OBSERVATIONS OF THE HOT INTERSTELLAR MEDIUM IN  
 SPIRAL GALAXIES  
*Period* *Obligations*  
 06/27/1991-07/31/1994 FY93: \$0 TOTAL: \$77,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 J N BREGMAN GSFC/R PETRE 11-Astronomy

**NAG 5-1691 University of Michigan - Ann Arbor 5146**  
 DEVELOP A SOLAR FLUX MONITOR FOR EARTH AND PLANETARY  
 MISSIONS  
*Period* *Obligations*  
 07/15/1991-08/31/1994 FY93: \$40,000 TOTAL: \$113,555  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 G R CARIGNAN GSFC/W R HOEGY 19-Phys Sci, NEC  
 ....J M GREBOWSKY

**NAG 5-1781 University of Michigan - Ann Arbor 5147**  
 A CONTINUING EVALUATION OF EOSDIS VO  
*Period* *Obligations*  
 09/12/1991-09/14/1993 FY93: \$0 TOTAL: \$83,329  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 A W ENGLAND GSFC/H K RAMAPRIYAN 39-Env Sci, NEC

**NASA'S UNIVERSITY PROGRAM**  
**MICHIGAN (Continued)**

**NAG 5-1820 University of Michigan - Ann Arbor 5148**  
 SEARCH FOR CORRELATED RADIO X-RAY VARIABILITY IN ACTIVE GALACTIC NUCLEI  
*Period Obligations*  
 11/06/1991-08/14/1993 FY93: \$0 TOTAL: \$36,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 H D ALLER GSFC/R PETRE 11-Astronomy

**NAG 5-1955 University of Michigan - Ann Arbor 5149**  
 THE GEOMETRY AND FILLING FACTOR OF THE HOT INTERST  
*Period Obligations*  
 03/26/1992-03/31/1994 FY93: \$50,000 TOTAL: \$77,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J N BREGMAN GSFC/R PETRE 11-Astronomy

**NAG 5-2071 University of Michigan - Ann Arbor 5150**  
 MODELS FOR GAMMA-RAY BURSTS  
*Period Obligations*  
 08/25/1992-08/31/1994 FY93: \$50,000 TOTAL: \$105,048  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M FATUZZO GSFC/J P NORRIS 11-Astronomy  
 ....N WHITE

**NAG 5-2110 University of Michigan - Ann Arbor 5151**  
 VARIATION OF THE SOLAR LYMAN ALPHA LINE PROFILE WITH SOLAR ACTIVITY  
*Period Obligations*  
 10/08/1992-10/14/1993 FY93: \$5,940 TOTAL: \$5,940  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M R COMBI GSFC/D WEST 11-Astronomy

**NAG 5-2228 University of Michigan - Ann Arbor 5152**  
 QUANTITATIVE ANALYSIS OF AURORAL OVAL DYNAMICS USING COMPUTER AIDED TECHNIQUES  
*Period Obligations*  
 04/07/1993-04/14/1994 FY93: \$39,202 TOTAL: \$39,202  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 C R CLAUSER GSFC/D FAIRFIELD 13-Physics  
 ....D N BAKER

**NAG 5-2250 University of Michigan - Ann Arbor 5153**  
 A MARS UPPER ATMOSPHERE DYNAMICS, ENERGETICS, AND EVOLUTION (MAUDEE) MISSION  
*Period Obligations*  
 04/27/1993-04/30/1994 FY93: \$50,000 TOTAL: \$50,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 T L KILLEEN GSFC/R E HARTLE 19-Phys Sci, NEC

**NAG 5-5003 University of Michigan - Ann Arbor 5154**  
 MEASUREMENTS OF THE ION DENSITY OF THE E-REGION AND MEASUREMENT OF ATOMIC OXYGEN IN DIFFUSE AURORA  
*Period Obligations*  
 04/16/1993-04/30/1994 FY93: \$60,202 TOTAL: \$60,202  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 W E SHARP GSFC/L J EARLY 13-Physics  
 ....R H PLESS

**NAG 8-919 University of Michigan - Ann Arbor 5155**  
 MOES DEVELOPMENT AND TEST FOR BALLOON EXPERIMENT  
*Period Obligations*  
 06/11/1992-06/09/1993 FY93: \$0 TOTAL: \$50,801  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 P B HAYS MSFC/R J KECZOR 31-Atmos Sci

**NAG 9-465 University of Michigan - Ann Arbor 5156**  
 PREDICTING VARIATION IN DRUG PLASMA LEVELS DUE TO VARIABLE GASTRIC EMPTYING AND INTESTINAL TRANSIT  
*Period Obligations*  
 08/01/1990-08/01/1993 FY93: \$68,950 TOTAL: \$187,900  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 G L AMIDON JSC/L PUTCHA 56-Medical Sciences  
 ....N CINTRON

**NAG 9-489 University of Michigan - Ann Arbor 5157**  
 SIR-C POLARIZED BACKSCATTER FROM VOLCANIC TERRAIN  
*Period Obligations*  
 12/06/1990-03/01/1992 FY93: \$5,131 TOTAL: \$18,396  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A W ENGLAND JSC/D BLANCHARD 59-Life Sci, NEC

**NAG 9-652 University of Michigan - Ann Arbor 5158**  
 SHEAR SENSITIVITIES OF HUMAN BONE MARROW CULTURES  
*Period Obligations*  
 10/28/1992-12/01/1993 FY93: \$105,000 TOTAL: \$105,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 B PALSSON HQ/G SPAULDING 51-Biological Sci

**NAGW 176 University of Michigan - Ann Arbor 5159**  
 INTERACTION OF BIOTA AND ATMOSPHERE: THE GEOLOGICAL RECORDS  
*Period Obligations*  
 04/01/1981-12/31/1993 FY93: \$133,354 TOTAL: \$1,368,351  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J C WALKER HQ/J D RUMMEL 12-Chemistry  
 ....M AVERNER

**NAGW 631 University of Michigan - Ann Arbor 5160**  
 PARTICIPATION IN THE MARS 88 MISSION  
*Period Obligations*  
 06/01/1984-05/31/1993 FY93: \$0 TOTAL: \$269,233  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A F NAGY HQ/H C BRINTON 31-Atmos Sci  
 ....W L QUAIDE

**NAGW 938 University of Michigan - Ann Arbor 5161**  
 ABSOLUTE DIFFERENTIAL EXCITATION  
*Period Obligations*  
 07/01/1986-11/30/1992 FY93: \$0 TOTAL: \$236,319  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 T SHYN HQ/J T BERGSTRALH 31-Atmos Sci  
 ....W L QUAIDE

**NAGW 1101 University of Michigan - Ann Arbor 5162**  
 EXTENDED ECOSYSTEMS SIGNATURES  
*Period Obligations*  
 06/01/1987-12/31/1992 FY93: \$0 TOTAL: \$1,194,769  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 F T ULABY HQ/J C DODGE 39-Env Sci, NEC

**NASA'S UNIVERSITY PROGRAM**  
**MICHIGAN (Continued)**

**NAGW 1334 University of Michigan - Ann Arbor 5163**  
 CENTER FOR NEAR-MILLIMETER WAVE COMM. AND SENSING  
 TECH.  
*Period* *Obligations*  
 07/13/1988-10/31/1993 FY93: \$1,630,000 TOTAL: \$9,384,225  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 F T ULABY HQ/S C HARTMAN 49-Engr, NEC

**NAGW 1362 University of Michigan - Ann Arbor 5164**  
 THE USE OF ERS-1 SAR IMAGING DATA  
*Period* *Obligations*  
 08/03/1988-08/31/1993 FY93: \$0 TOTAL: \$225,052  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 M C DOBSON HQ/D E WICKLAND 39-Env Sci, NEC  
 J CIMINO ....T J PIEPER  
 F ULABY

**NAGW 1366 University of Michigan - Ann Arbor 5165**  
 MODELING OF COMETARY ATMOSPHERE  
*Period* *Obligations*  
 07/13/1988-12/31/1993 FY93: \$80,457 TOTAL: \$379,503  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 T I GOMBOSI HQ/J T BERGSTRALH 11-Astronomy  
 ....W L QUIADE

**NAGW 1535 University of Michigan - Ann Arbor 5166**  
 THE EFFECTS ON THE IONOSPHERE OF INERTIA IN THE HIGH  
*Period* *Obligations*  
 12/02/1988-04/30/1992 FY93: \$0 TOTAL: \$142,234  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 T L KILLEEN HQ/M M MELLOTT 13-Physics  
 1 0 ....T W PERRY

**NAGW 1619 University of Michigan - Ann Arbor 5167**  
 STUDIES OF IONOSPHERE-PLASMASPHERE-MAGNETOSPHERE  
 SYSTEM  
*Period* *Obligations*  
 02/27/1989-12/31/1993 FY93: \$264,000 TOTAL: \$1,149,368  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 A F NAGY HQ/M M MELLOTT 13-Physics  
 ....T W PERRY

**NAGW 1642 University of Michigan - Ann Arbor 5168**  
 SUPERCONDUCTING MAGNET INSTRUMENT FOR LIGHT ISOTOPES  
*Period* *Obligations*  
 01/26/1989-01/31/1994 FY93: \$190,000 TOTAL: \$900,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 G TARLE HQ/M M MELLOTT 13-Physics  
 ....W V JONES

**NAGW 1744 University of Michigan - Ann Arbor 5169**  
 STUDIES OF LARGE SCALE STRATOSPHERIC DYNAMICS  
*Period* *Obligations*  
 06/16/1989-12/31/1992 FY93: \$0 TOTAL: \$136,171  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 A K SMITH HQ/R D MCPETERS 31-Atmos Sci  
 ....M J PRATHER

**NAGW 1766 University of Michigan - Ann Arbor 5170**  
 ANALYSIS OF MULTI=D-WAVELENGTH OBSERVATIONS OF THE  
 AURORA  
*Period* *Obligations*  
 05/31/1989-10/31/1993 FY93: \$65,141 TOTAL: \$269,695  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 J T CLARKE HQ/J T BERGSTRALH 11-Astronomy

**NAGW 1771 University of Michigan - Ann Arbor 5171**  
 A PROGRAM FOR RESEARCH IN PLANETARY ATMOSPHERES  
*Period* *Obligations*  
 05/26/1989-11/30/1993 FY93: \$65,000 TOTAL: \$389,508  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 S ATREYA HQ/J T BERGSTRALH 11-Astronomy

**NAGW 1783 University of Michigan - Ann Arbor 5172**  
 VISIBLE AIRGLOW EXPERIMENT DATA ANALYSIS  
*Period* *Obligations*  
 06/09/1989-05/31/1993 FY93: \$0 TOTAL: \$172,321  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 V J ABREU HQ/M M MELLOTT 13-Physics  
 ....T W PERRY

**NAGW 1907 University of Michigan - Ann Arbor 5173**  
 THE DISTRIBUTION OF GAS IN THE INNER CORNAE OF COMETS  
*Period* *Obligations*  
 12/27/1989-10/31/1993 FY93: \$81,899 TOTAL: \$274,856  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 M R COMBI HQ/J BERGSTRALH 11-Astronomy

**NAGW 1908 University of Michigan - Ann Arbor 5174**  
 AN ANALYSIS OF CCD IMAGES OF THE COMA OF COMET HALLEY  
*Period* *Obligations*  
 11/03/1989-09/30/1992 FY93: \$0 TOTAL: \$129,431  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 M R COMBI HQ/J H RAHE 11-Astronomy

**NAGW 1946 University of Michigan - Ann Arbor 5175**  
 STUDYING THE DYNAMICS AND PHOTOCHEMICAL KINETICS OF  
 THE COMA OF COMET P/HALLEY  
*Period* *Obligations*  
 01/24/1990-10/31/1992 FY93: \$0 TOTAL: \$29,087  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 M COMBI HQ/J BERGSTRALH 11-Astronomy

**NAGW 1983 University of Michigan - Ann Arbor 5176**  
 MAPPING REGIONAL FREEZE/THAW PATTERNS WITH SATELLITE  
 MICROWAVE RADIOMETRY  
*Period* *Obligations*  
 04/25/1990-12/31/1992 FY93: \$0 TOTAL: \$300,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 A W ENGLAND HQ/G ASRAR 39-Env Sci, NEC  
 ....T J PIEPER

**NAGW 2006 University of Michigan - Ann Arbor 5177**  
 THE EFFECT OF SOLAR SOFT X-RAYS ON THE PRODUCTION OF  
 PHOTOELECTRONS AND NITRIC OXIDE  
*Period* *Obligations*  
 05/04/1990-03/31/1992 FY93: \$0 TOTAL: \$67,931  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 D E SISKIND HQ/M M MELLOTT 13-Physics  
 ....T PERRY

**NAGW 2008 University of Michigan - Ann Arbor 5178**  
 INVESTIGATION OF THE ROLE OF SOFT ELECTRON PRECIPITATION  
 IN THE EXCITATION OF SAR ARCS  
*Period* *Obligations*  
 05/04/1990-09/30/1992 FY93: \$0 TOTAL: \$37,462  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 E G FONTHEIM HQ/M M MELLOTT 13-Physics  
 ....T PERRY



**NASA'S UNIVERSITY PROGRAM**  
**MICHIGAN (Continued)**

**NAGW 2124 University of Michigan - Ann Arbor 5179**  
 A PRECISE MEASUREMENT OF THE TEMPERATURE OF THE COSMIC BACKGROUND RADIATION  

Period	Obligations	
05/23/1990-05/31/1994	FY93: \$0	TOTAL: \$100,000
Prin. Invest.	NASA Tech. Officer	CASE Category
D J HEYGI	HQ/G LEVY	31-Atmos Sci

**NAGW 2350 University of Michigan - Ann Arbor 5186**  
 STUDIES OF DYNAMIC PROCESSES RELATED TO ACTIVE EXPERIMENTS IN SPACE PLASMAS  

Period	Obligations	
02/11/1991-09/30/1992	FY93: \$0	TOTAL: \$110,254
Prin. Invest.	NASA Tech. Officer	CASE Category
P M BANKS	HQ/M M MELLOTT	13-Physics
	....T PERRY	

**NAGW 2125 University of Michigan - Ann Arbor 5180**  
 A PRECISE MEASUREMENT OF THE TEMPERATURE OF THE COSMIC BACKGROUND RADIATION  

Period	Obligations	
05/23/1990-02/28/1994	FY93: \$60,000	TOTAL: \$262,000
Prin. Invest.	NASA Tech. Officer	CASE Category
D J HEYGI	HQ/G LEVY	31-Atmos Sci

**NAGW 2367 University of Michigan - Ann Arbor 5187**  
 NAGW-2367/UNIV MICHIGAN/HYDRODYNAMIC SIMULATIONS OF THE INTRACLUSTER MEDIUM  

Period	Obligations	
03/11/1991-01/31/1994	FY93: \$88,245	TOTAL: \$254,065
Prin. Invest.	NASA Tech. Officer	CASE Category
A E EVRARD	HQ/G S KUTTER	11-Astronomy
	....G R RIEGLER	

**NAGW 2135 University of Michigan - Ann Arbor 5181**  
 THE HOT INTERSTELLAR MEDIUM IN SPIRAL AND ELLIPTICAL GALAXIES  

Period	Obligations	
10/23/1990-12/31/1993	FY93: \$174,818	TOTAL: \$601,451
Prin. Invest.	NASA Tech. Officer	CASE Category
J N BREGMAN	HQ/G S KUTTER	11-Astronomy
	....G R RIEGLER	

**NAGW 2398 University of Michigan - Ann Arbor 5188**  
 OZONE EXCITED STATES; PRODUCTION AND ATMOSPHERIC REACTIONS  

Period	Obligations	
03/18/1991-02/28/1993	FY93: \$0	TOTAL: \$113,000
Prin. Invest.	NASA Tech. Officer	CASE Category
J R BARKER	HQ/M J KURYLO	31-Atmos Sci
	....R F HAMPSON	

**NAGW 2151 University of Michigan - Ann Arbor 5182**  
 INVESTIGATION OF POLARIMETRIC RADAR RESPONSE TO SOIL MOISTURE AND SURFACE ROUGHNESS  

Period	Obligations	
07/02/1990-04/30/1994	FY93: \$100,000	TOTAL: \$438,000
Prin. Invest.	NASA Tech. Officer	CASE Category
F ULABY	HQ/G ASRAR	39-Env Sci, NEC
	....T J PIEPER	

**NAGW 2501 University of Michigan - Ann Arbor 5189**  
 NAGW-2501/UNIV MICHIGAN/PARTICIPATION AS A CO-INVESTIGATOR ON THE MARS 94 ELISMA INVESTIGATION  

Period	Obligations	
06/13/1991-12/31/1993	FY93: \$39,669	TOTAL: \$121,669
Prin. Invest.	NASA Tech. Officer	CASE Category
L H BRACE	HQ/W L QUAIDE	19-Phys Sci, NEC

**NAGW 2162 University of Michigan - Ann Arbor 5183**  
 THEORETICAL STUDIES OF NON-EQUILIBRIUM SPACE PLASMA FLOWS  

Period	Obligations	
09/06/1990-11/30/1991	FY93: \$407	TOTAL: \$133,954
Prin. Invest.	NASA Tech. Officer	CASE Category
T GOMBOSI	HQ/M M MELLOTT	13-Physics
	....T PERRY	

**NAGW 2533 University of Michigan - Ann Arbor 5190**  
 MARS 94 INVESTIGATIONS  

Period	Obligations	
07/30/1991-01/31/1994	FY93: \$60,428	TOTAL: \$143,428
Prin. Invest.	NASA Tech. Officer	CASE Category
A NAGY	HQ/W L QUAIDE	31-Atmos Sci

**NAGW 2199 University of Michigan - Ann Arbor 5184**  
 NAGW-2199/UNIV OF MICHIGAN/THEORETICAL AND EXPERIMENTAL MODELS OF THE DIFFUSE RADAR BACKSCATTER  

Period	Obligations	
08/14/1990-12/31/1993	FY93: \$38,700	TOTAL: \$110,700
Prin. Invest.	NASA Tech. Officer	CASE Category
A W ENGLAND	HQ/T A MAXWELL	32-Geological Sci

**NAGW 2561 University of Michigan - Ann Arbor 5191**  
 MARS '94 PARTICIPATING SCIENTIST: INVESTIGATION OF STABILITY OF THE MARTIAN ATMOSPHERE  

Period	Obligations	
07/31/1991-01/31/1994	FY93: \$36,000	TOTAL: \$107,770
Prin. Invest.	NASA Tech. Officer	CASE Category
S K ATREYA	HQ/W L QUAIDE	19-Phys Sci, NEC

**NAGW 2207 University of Michigan - Ann Arbor 5185**  
 HYDROGEN BUDGET OF VENUS  

Period	Obligations	
11/27/1990-12/31/1991	FY93: \$0	TOTAL: \$17,000
Prin. Invest.	NASA Tech. Officer	CASE Category
T DONAHUE	HQ/J BERGSTRAHL	11-Astronomy

**NAGW 2608 University of Michigan - Ann Arbor 5192**  
 PHOTO-BIOREACTOR ENGINEERING: LIGHT DELIVERY, AND ALGAL GROWTH AND GAS EXCHANGE  

Period	Obligations	
09/12/1991-01/14/1994	FY93: \$247,682	TOTAL: \$744,014
Prin. Invest.	NASA Tech. Officer	CASE Category
B O PALSSON	HQ/M M AVERNER	51-Biological Sci

**NASA'S UNIVERSITY PROGRAM**  
**MICHIGAN (Continued)**

**NAGW 2802 University of Michigan - Ann Arbor 5193**  
 STAR FORMATION STUDIES: DYNAMICS AND INFRARED SIGN  
 ATURES

Period	Obligations	
01/03/1992-11/30/1993	FY93: \$90,199	TOTAL: \$137,066
Prin. Invest.	NASA Tech. Officer	CASE Category
F C ADAMS	HQ/L J CAROFF	11-Astronomy

**NAG10-69 University of Michigan - Ann Arbor 5200**  
 GRAVITROPIC RESPONSE MECHANISM IN CEREAL GRASS  
 SHOOTS

Period	Obligations	
02/12/1990-06/30/1993	FY93: \$0	TOTAL: \$165,019
Prin. Invest.	NASA Tech. Officer	CASE Category
P KAUFMAN	KSC/W M KNOTT	55-Agriculture Sci

**NAGW 3417 University of Michigan - Ann Arbor 5194**  
 STUDIES OF THE TENOUS PLANETARY ATMOSPHERES

Period	Obligations	
03/09/1993-12/31/1993	FY93: \$74,931	TOTAL: \$74,931
Prin. Invest.	NASA Tech. Officer	CASE Category
M COMBI	HQ/H C BRINTON	19-Phys Sci, NEC

**NAS 1-18290 University of Michigan - Ann Arbor 5201**  
 HALOE SCIENTIFIC INVESTIGATION

Period	Obligations	
05/08/1986-12/31/1993	FY93: \$63,000	TOTAL: \$664,841
Prin. Invest.	NASA Tech. Officer	CASE Category
S R DRAYSON	LARC/E M SULLIVAN	31-Atmos Sci
	....J M RUSSELL III	

**NAGW 3423 University of Michigan - Ann Arbor 5195**  
 ANAL. AND INTRE. OF PION. VENUS LAR. PROBE NEUTRAL MASS  
 SPECTROMETER DATA

Period	Obligations	
03/01/1993-12/31/1993	FY93: \$55,865	TOTAL: \$55,865
Prin. Invest.	NASA Tech. Officer	CASE Category
T M DONAHUE	HQ/H C BRINTON	19-Phys Sci, NEC

**NAS 3-25812 University of Michigan - Ann Arbor 5202**  
 SCIENTIFIC SUPPORT FOR: POOL BOILING EXPERIMENT ( PBE)

Period	Obligations	
02/28/1990-02/10/1994	FY93: \$149,999	TOTAL: \$499,808
Prin. Invest.	NASA Tech. Officer	CASE Category
H MERTE	LERC/F P CHIARAMONTE	46-Mech Engr

**NAGW 3430 University of Michigan - Ann Arbor 5196**  
 LINKING GCM HYDROLOGIC PARAMETERS TO THE RADIOBRIG  
 HTNESS OF NORTHERN PRAIRIE AND ARCTIC TUNDRA

Period	Obligations	
03/03/1993-12/31/1993	FY93: \$100,000	TOTAL: \$100,000
Prin. Invest.	NASA Tech. Officer	CASE Category
A W ENGLAND	HQ/R E MURPHY	39-Env Sci, NEC

**NAS 3-26820 University of Michigan - Ann Arbor 5203**  
 MICROSTRUCTURAL DESIGN AND ELEVATED CREEP AND CREESIC  
 -FIBER RBSN COMPOSITES.

Period	Obligations	
10/30/1992-02/15/1994	FY93: \$115,498	TOTAL: \$115,498
Prin. Invest.	NASA Tech. Officer	CASE Category
J W HOLMES	LERC/R T BHATT	47-Materials Engr
L W JONES		

**NAGW 3457 University of Michigan - Ann Arbor 5197**  
 DATA ANALYSIS AND THEORETICAL STUDIES OF THE LOWER  
 THERMOSPHERE

Period	Obligations	
03/19/1993-02/28/1994	FY93: \$83,339	TOTAL: \$83,339
Prin. Invest.	NASA Tech. Officer	CASE Category
T L KILLEEN	HQ/M M MELLOTT	13-Physics
	....G L WITHBROE	

**NAS 3-27141 University of Michigan - Ann Arbor 5204**  
 INFLUENCE OF MICROSTRUCTURE ON THE ELEVATED TEMPER  
 ATURE MECHANICAL BEHAVIOR OF FIBER-REINFORCED CERM

Period	Obligations	
09/29/1993-01/15/1995	FY93: \$91,565	TOTAL: \$91,565
Prin. Invest.	NASA Tech. Officer	CASE Category
J W HOLMES	LERC/R T BHATT	47-Materials Engr

**NAGW 3579 University of Michigan - Ann Arbor 5198**  
 INVESTIGATION OF THE IONOSPHERE AND IONOTAIL OF VE NUS

Period	Obligations	
05/25/1993-03/14/1994	FY93: \$30,000	TOTAL: \$30,000
Prin. Invest.	NASA Tech. Officer	CASE Category
L BRACE	HQ/J T BERGSTRALH	31-Atmos Sci

**NAS 5-27751 University of Michigan - Ann Arbor 5205**  
 DESIGN, FABRICATE AND DELIVER A PROTOFLIGHT HIGH  
 RESOLUTION DOPPLER IMAGER FOR THE UARS

Period	Obligations	
09/26/1983-06/30/1994	FY93: \$1,657,122	TOTAL: \$33,668,332
Prin. Invest.	NASA Tech. Officer	CASE Category
P HAYS	GSFC/G HONEYCUTT	31-Atmos Sci
	....J DONLEY	

**NAGW 3585 University of Michigan - Ann Arbor 5199**  
 STUDIES FOR THE LOSS OF ATOMIC AND MOLECULAR SPECI ES  
 FROM IO

Period	Obligations	
05/12/1993-04/30/1994	FY93: \$32,463	TOTAL: \$32,463
Prin. Invest.	NASA Tech. Officer	CASE Category
M COMB	HQ/H C BRINTON	19-Phys Sci, NEC

**NAS 5-29344 University of Michigan - Ann Arbor 5206**  
 FIELD SUPPORT FOR THE GALILEO PROBE MASS SPECTROMETER  
 (GPMS) ELECTRONICS

Period	Obligations	
04/19/1986-12/15/1992	FY93: \$0	TOTAL: \$162,016
Prin. Invest.	NASA Tech. Officer	CASE Category
G CARIGNAN	GSFC/S WAY	31-Atmos Sci

**NASA'S UNIVERSITY PROGRAM**  
**MICHIGAN (Continued)**

**NAS 5-30119 University of Michigan - Ann Arbor 5207**  
 SCIENTIFIC INTERPRETATION OF GPMS DATA  

<i>Period</i>		<i>Obligations</i>	
06/15/1987-09/30/1994	FY93: \$0		TOTAL: \$107,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>		<i>CASE Category</i>
S K ATREYA	GSFC/B NIEMANN		31-Atmos Sci

**NAS 5-30120 University of Michigan - Ann Arbor 5208**  
 SCIENTIFIC INTERPRETATION OF GPMS DATA  

<i>Period</i>		<i>Obligations</i>	
06/15/1987-09/30/1994	FY93: \$0		TOTAL: \$57,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>		<i>CASE Category</i>
T M DONAHUE	GSFC/J R RICHARDS		31-Atmos Sci

**NAS 5-30943 University of Michigan - Ann Arbor 5209**  
 ELECTRONICS PACKAGE FOR THE COMET RENDEZVOUS ASTEROID  
 FLYBY NEUTRAL GAS ION MASS SPECTROMETER  

<i>Period</i>		<i>Obligations</i>	
02/25/1991-08/31/1995	FY93: \$222,307		TOTAL: \$1,376,098
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>		<i>CASE Category</i>
G CARIGNAN	GSFC/R L FROST		31-Atmos Sci

**NAS 5-30955 University of Michigan - Ann Arbor 5210**  
 ELECTRONICS PACKAGE FOR THE HUYGENS PROBE; GAS  
 CHROMATOGRAPH MASS SPECTROMETER  

<i>Period</i>		<i>Obligations</i>	
04/08/1991-09/30/1995	FY93: \$550,177		TOTAL: \$1,650,177
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>		<i>CASE Category</i>
G CARIGNAN	GSFC/R L FROST		31-Atmos Sci

**NAS 5-31200 University of Michigan - Ann Arbor 5211**  
 LONG DURATION BALLOON FLIGHT INTEGRATION SUPPORT  

<i>Period</i>		<i>Obligations</i>	
01/18/1991-03/17/1993	FY93: \$286,158		TOTAL: \$1,314,889
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>		<i>CASE Category</i>
J TROMBKA	GSFC/S FLOYD		99-Multi-Discip

**NAS 8-37108 University of Michigan - Ann Arbor 5212**  
 STUDY ENTITLED 'RESEARCH ON ORBITAL  
 PLASMA-ELECTRODYNAMICS (ROPE).'  

<i>Period</i>		<i>Obligations</i>	
04/14/1987-06/23/1994	FY93: \$0		TOTAL: \$56,200
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>		<i>CASE Category</i>
E G FONTHEIM	MSFC/M F MALONE		31-Atmos Sci
	..../R HOLDER		

**NAS 8-38772 University of Michigan - Ann Arbor 5213**  
 SUPPORT FOR SPACE EXPERIMENTS WITH PARTICLE ACCELE  

<i>Period</i>		<i>Obligations</i>	
11/27/1990-06/30/1994	FY93: \$169,263		TOTAL: \$581,263
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>		<i>CASE Category</i>
P BANKS	MSFC/D HIGGINS		13-Physics
T NUEBERT			

**NAS 8-39381 University of Michigan - Ann Arbor 5214**  
 SHUTTLE ELECTRODYNAMIC TETHER SYSTEM  

<i>Period</i>		<i>Obligations</i>	
06/26/1992-09/30/1993	FY93: \$627,609		TOTAL: \$1,161,131
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>		<i>CASE Category</i>
P M BANKS	MSFC/J H KERR		42-Astro Engr
B E GILEHRIST			

**NCA 2-521 University of Michigan - Ann Arbor 5215**  
 CALCULATION OF REACTING HYPERSONIC FLOW FIELDS  

<i>Period</i>		<i>Obligations</i>	
05/21/1990-04/30/1993	FY93: \$0		TOTAL: \$54,896
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>		<i>CASE Category</i>
P L ROE	ARC/H M YEE		42-Astro Engr
	..../G S DEIWERT		

**NCA 2-543 University of Michigan - Ann Arbor 5216**  
 SCATTERING BY CONFORMAL ANTENNAS AND RADOMES  

<i>Period</i>		<i>Obligations</i>	
07/13/1990-09/30/1992	FY93: \$0		TOTAL: \$80,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>		<i>CASE Category</i>
J L VOLAKIS	ARC/A C WOO		45-Elec Engr

**NCA 2-586 University of Michigan - Ann Arbor 5217**  
 PRELIMINARY SYSTEM DESIGN FRO MEDSAT SATELLITE  

<i>Period</i>		<i>Obligations</i>	
02/20/1991-01/14/1992	FY93: \$0		TOTAL: \$39,888
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>		<i>CASE Category</i>
J F VESECKY	ARC/J S SALUTE		42-Astro Engr

**NCA 2-653 University of Michigan - Ann Arbor 5218**  
 CHARACTERIZATION OF SPIRAL PATCH ANTENNAS  

<i>Period</i>		<i>Obligations</i>	
09/03/1991-11/30/1992	FY93: \$0		TOTAL: \$49,500
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>		<i>CASE Category</i>
J L VOLAKIS	ARC/A C WOO		45-Elec Engr

**NCA 2-681 University of Michigan - Ann Arbor 5219**  
 PRELIMINARY SYSTEM DESIGN FOR LOW ALTITUDE REMOTEL Y  
 PILOTED AIRCRAFT  

<i>Period</i>		<i>Obligations</i>	
01/21/1992-06/30/1993	FY93: \$0		TOTAL: \$15,265
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>		<i>CASE Category</i>
J VESECKY	ARC/P B RUSSELL		41-Aero Engr
J DAIDA			

**NCA 2-839 University of Michigan - Ann Arbor 5220**  
 ANALYSIS OF CYLINDRICAL WRAP-AROUND AND DOUBLY CONFO  
 RMAL PATCH ANTENNAS VIA THE FINITE ELEMENT-ARTIFI  

<i>Period</i>		<i>Obligations</i>	
08/25/1993-09/30/1994	FY93: \$29,000		TOTAL: \$29,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>		<i>CASE Category</i>
J L VOLAKIS	ARC/A C WOO		45-Elec Engr

**NCC 2-517 University of Michigan - Ann Arbor 5221**  
 FUSION OF ROBOTICS,ARTIFICAL INTELLIGENCE,PERCEPTIAND  
 HUMAN SYSTEMS FOR ADVANCED SPACE MISSIONS  

<i>Period</i>		<i>Obligations</i>	
11/01/1987-09/30/1993	FY93: \$105,000		TOTAL: \$1,158,403
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>		<i>CASE Category</i>
R A VOLZ	ARC/P E FRIEDLAND		22-Computer Science
J LAIRD	..../P D LAIRD		
L CONWAY			

**NCC 2-573 University of Michigan - Ann Arbor 5222**  
 AUTONOMOUS VISUAL NAVIGATION SYSTEM FOR ROTORCRAFT S  

<i>Period</i>		<i>Obligations</i>	
12/15/1988-12/31/1993	FY93: \$29,343		TOTAL: \$363,407
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>		<i>CASE Category</i>
N H MCCCLAMROCH	ARC/B SRIDHAR		41-Aero Engr
	..../V H CHENG		

**NASA'S UNIVERSITY PROGRAM**  
**MICHIGAN (Continued)**

**NCC 3-76 University of Michigan - Ann Arbor 5223**  
 DEV. OF TOUGH NI AL-BASED ALLOYS AND COMPOSITE MATERIALS  
 FOR HIGH TEMP. APP.

Period	Obligations
01/06/1987-12/31/1993	FY93: \$0 TOTAL: \$147,610
Prin. Invest.	NASA Tech. Officer CASE Category
R GIBALA	LERC/R D NOEBE 47-Materials Engr
	....M V NATHAL

**NCC 3-214 University of Michigan - Ann Arbor 5224**  
 FREE ENERGY SIMULATIONS OF SOLIDS USING EQUIVALENT  
 CRYSTAL THEORY POTENTIALS

Period	Obligations
05/10/1991-08/31/1993	FY93: \$0 TOTAL: \$62,000
Prin. Invest.	NASA Tech. Officer CASE Category
D J SROLOVITZ	LERC/J FERRANTE 13-Physics

**NGR23-5360 University of Michigan - Ann Arbor 5225**  
 A PROGRAM IN AERONOMY \$179,225

Period	Obligations
12/29/1969-01/31/1994	FY93: \$227,400 TOTAL: \$4,378,984
Prin. Invest.	NASA Tech. Officer CASE Category
W E SHARP	GSFC/L J EARLY 13-Physics
	....R H PLESS

**NGT 00-030-103 University of Michigan - Ann Arbor 5226**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM

Period	Obligations
09/04/1992-08/31/1994	FY93: \$22,000 TOTAL: \$44,000
Prin. Invest.	NASA Tech. Officer CASE Category
L L GEZON	HQ/G ASRAR 99-Multi-Discip
	....D M BUTLER

**NGT 00-030-208 University of Michigan - Ann Arbor 5227**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM

Period	Obligations
08/27/1993-08/31/1994	FY93: \$22,000 TOTAL: \$22,000
Prin. Invest.	NASA Tech. Officer CASE Category
W KUHN	HQ/D M BUTLER 39-Env Sci, NEC
	....G ASRAR

**NGT 00-040-007 University of Michigan - Ann Arbor 5228**  
 NATIONAL SPACE GRANT COLLEGE AND FELLOWSHIP PROGRAM

Period	Obligations
10/18/1989-05/31/1993	FY93: \$0 TOTAL: \$1,057,000
Prin. Invest.	NASA Tech. Officer CASE Category
J G ELSLEY	HQ/E T SCHWARTZ 99-Multi-Discip

**NGT 00-050-368 University of Michigan - Ann Arbor 5229**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM

Period	Obligations
08/23/1988-08/31/1992	FY93: \$0 TOTAL: \$69,000
Prin. Invest.	NASA Tech. Officer CASE Category
T I GOMBOSI	HQ/F C OWENS 13-Physics

**NGT 00-050-521 University of Michigan - Ann Arbor 5230**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM

Period	Obligations
09/18/1989-08/31/1992	FY93: \$0 TOTAL: \$62,000
Prin. Invest.	NASA Tech. Officer CASE Category
J R BARKER	HQ/F C OWENS 12-Chemistry

**NGT 00-050-545 University of Michigan - Ann Arbor 5231**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM

Period	Obligations
05/09/1990-06/30/1993	FY93: \$0 TOTAL: \$66,000
Prin. Invest.	NASA Tech. Officer CASE Category
K G POWELL	HQ/F C OWENS 41-Aero Engr

**NGT 00-050-553 University of Michigan - Ann Arbor 5232**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM

Period	Obligations
06/21/1990-06/30/1992	FY93: \$0 TOTAL: \$44,000
Prin. Invest.	NASA Tech. Officer CASE Category
N H MCCLAMROCH	HQ/F C OWENS 45-Elec Engr

**NGT 00-050-555 University of Michigan - Ann Arbor 5233**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM

Period	Obligations
06/22/1990-05/30/1992	FY93: \$0 TOTAL: \$44,000
Prin. Invest.	NASA Tech. Officer CASE Category
G L AMIDON	HQ/F C OWENS 56-Medical Sciences

**NGT 00-050-644 University of Michigan - Ann Arbor 5234**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM

Period	Obligations
07/24/1990-06/30/1992	FY93: \$0 TOTAL: \$44,000
Prin. Invest.	NASA Tech. Officer CASE Category
K G POWELL	HQ/F C OWENS 41-Aero Engr

**NGT 00-050-645 University of Michigan - Ann Arbor 5235**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM

Period	Obligations
08/14/1990-08/31/1993	FY93: \$0 TOTAL: \$66,000
Prin. Invest.	NASA Tech. Officer CASE Category
T KAMMASH	HQ/F C OWENS 46-Mech Engr

**NGT 00-050-713 University of Michigan - Ann Arbor 5236**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM

Period	Obligations
07/01/1991-06/30/1994	FY93: \$18,750 TOTAL: \$62,750
Prin. Invest.	NASA Tech. Officer CASE Category
P L ROE	HQ/F C OWENS 42-Astro Engr

**NGT 00-050-901 University of Michigan - Ann Arbor 5237**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM

Period	Obligations
05/22/1992-06/30/1994	FY93: \$22,000 TOTAL: \$44,000
Prin. Invest.	NASA Tech. Officer CASE Category
J N BREGMAN	HQ/J ALEXANDER 11-Astronomy

**NGT 00-050-928 University of Michigan - Ann Arbor 5238**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM

Period	Obligations
05/13/1992-08/31/1994	FY93: \$22,000 TOTAL: \$44,000
Prin. Invest.	NASA Tech. Officer CASE Category
H MERTE	HQ/J K ALEXANDER 46-Mech Engr

# NASA'S UNIVERSITY PROGRAM MICHIGAN

## MICHIGAN

**NAGW 3208** **Delta College** **5062**  
NAGW-3208/DELTA COLLEGE/DELTA COLLEGE SCIENCE LEARNING CENTER

<i>Period</i>	<i>Obligations</i>	
09/17/1992-09/30/1993	FY93: \$583,529	TOTAL: \$750,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
H ARMAN	HQ/M PHELPS	99-Multi-Discip

**NAGW 3073** **Eastern Michigan University** **5063**  
TEACHER TRAINING PRE-SERVICE PILOT PROGRAM

<i>Period</i>	<i>Obligations</i>	
05/29/1992-08/31/1994	FY93: \$0	TOTAL: \$82,408
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
J BARNES	HQ/D GALLAWAY	99-Multi-Discip

**NAG 8-226** **Grand Valley State University** **5064**

JOVE

<i>Period</i>	<i>Obligations</i>	
02/25/1992-08/24/1994	FY93: \$40,234	TOTAL: \$116,782
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
W A CHREN	MSFC/F SIX	59-Life Sci, NEC
K C COLE		
R A REYNOLDS		

**NAGW 3006** **Grand Valley State University** **5065**  
EFFECT OF GLACIAL AND POLAR ICE ON SPACE GEODETIC OBSERVATIONS

<i>Period</i>	<i>Obligations</i>	
03/20/1992-12/31/1993	FY93: \$33,583	TOTAL: \$77,729
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
A S TROPIN	HQ/R E MURPHY	32-Geological Sci
	....D M BUTLER	

**NAG 1-1480** **Hope College** **5066**  
BUILDING A SOFTWARE INFRASTRUCTURE FOR PARALLEL SOFTWARE DESIGN NLPN 92-910

<i>Period</i>	<i>Obligations</i>	
02/23/1993-02/22/1994	FY93: \$24,984	TOTAL: \$24,984
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
M J JIPPING	LARC/D E ECKHARDT	22-Computer Science

**NAG 8-263** **Hope College** **5067**

JOVE

<i>Period</i>	<i>Obligations</i>	
11/09/1992-05/31/1994	FY93: \$44,020	TOTAL: \$44,020
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
P L GONTHIER	MSFC/F SIX	13-Physics
M J JIPPING		

**NAG 1-1106** **Michigan State University** **5068**  
LIPA MEASUREMENTS OF HIGH REYNOLDS NUMBER CYLINDER FLOW

<i>Period</i>	<i>Obligations</i>	
03/02/1990-09/30/1993	FY93: \$0	TOTAL: \$70,001
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
R E FALCO	LARC/L M WEINSTEIN	41-Aero Engr
C GENDRICH	....J B ANDERS	

**NAG 1-1328** **Michigan State University** **5069**

A MINIATURE TEMPERATURE SENSOR ARRAY USING THIN FILM DIAMOND ELEMENTS, SUITABLE FOR HARSH ENVIRON

<i>Period</i>	<i>Obligations</i>	
08/06/1991-12/31/1992	FY93: \$0	TOTAL: \$100,001
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
M ASLAM	LARC/R J NOWAK	45-Elec Engr
	....S K KAHNG	

**NAG 3-853** **Michigan State University** **5070**

STRATIFIED CHARGE ROTARY ENGINE COMBUSTION STUDIES  
STRATIFIED CHARGE ROTARY ENGINE COMBUSTION STUDIE

<i>Period</i>	<i>Obligations</i>	
12/16/1987-12/31/1992	FY93: \$0	TOTAL: \$1,050,271
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
H J SHOCK	LERC/E A WILLIS	46-Mech Engr
F J HAMADY		

**NAG 3-1271** **Michigan State University** **5071**

AN EXPERIMENTAL THEORETICAL STUDY OF RADIATIVE EXTINCTION OF DIFFUSION FLAMES

<i>Period</i>	<i>Obligations</i>	
04/15/1991-03/24/1994	FY93: \$35,000	TOTAL: \$185,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
A ATREYA	LERC/K R SACKSTEDER	49-Engr, NEC
I S WICHMAN		

**NAG 3-1304** **Michigan State University** **5072**

INVESTIGATION ON THE USE OF DIGITAL SIGNAL PROCESSING FOR PHASE STEPPING INTERFEROMETRY

<i>Period</i>	<i>Obligations</i>	
11/05/1991-01/18/1994	FY93: \$41,595	TOTAL: \$71,595
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
H J SCHOCK	LERC/C R MERCER	45-Elec Engr
	....D J LESCO	

**NAG 3-1459** **Michigan State University** **5073**

TIME RESOLVED MEASUREMENTS OF THE STREAMWISE VORTICITY IN THE MIXING LAYER FROM A TABBED NOZZLE

<i>Period</i>	<i>Obligations</i>	
02/22/1993-02/15/1994	FY93: \$35,903	TOTAL: \$35,903
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
J F FOSS	LERC/K Q ZAMAN	46-Mech Engr

**NAGW 882** **Michigan State University** **5074**

GRANT RESEARCH

<i>Period</i>	<i>Obligations</i>	
04/01/1986-03/31/1993	FY93: \$0	TOTAL: \$290,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
K L POFF	HQ/T HALSTEAD	51-Biological Sci

**NAGW 1695** **Michigan State University** **5075**

SOLAR CONVECTOR DYNAMICS AND OSCILLATIONS

<i>Period</i>	<i>Obligations</i>	
02/27/1989-11/30/1993	FY93: \$48,000	TOTAL: \$191,186
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
R F STEIN	HQ/J D BOHLIN	13-Physics
	....S KANE	

**NASA'S UNIVERSITY PROGRAM**  
**MICHIGAN (Continued)**

**NGT 00-050-931 University of Michigan - Ann Arbor 5239**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 08/17/1992-08/31/1994 FY93: \$22,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 P ROE ARC/B HASTINGS 41-Aero Engr

**NGT 00-051-180 University of Michigan - Ann Arbor 5247**  
 GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 09/02/1993-09/05/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J U KOZYRA MSFC/B SWINFORD 13-Physics

**NGT 00-050-977 University of Michigan - Ann Arbor 5240**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 07/24/1992-06/30/1994 FY93: \$22,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A M WAAS LARC/E J PRIOR 42-Astro Engr

**NGT 00-070-096 University of Michigan - Ann Arbor 5248**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
 MINORITY FOCUS PROGRAM  
*Period Obligations*  
 08/15/1988-08/31/1992 FY93: \$0 TOTAL: \$80,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 T I GOMBOSI HQ/F C OWENS 31-Atmos Sci

**NGT 00-051-057 University of Michigan - Ann Arbor 5241**  
 GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 05/25/1993-06/30/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J T HOLLAND JSC/S GOLDSTEIN 22-Computer Science

**NGT 00-090-207 University of Michigan - Ann Arbor 5249**  
 UNDERGRADUATE STUDENT RESEARCHERS (UMF) PROGRAM  
*Period Obligations*  
 09/14/1993-08/14/1994 FY93: \$12,000 TOTAL: \$12,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 N H MCCLAMROCH HQ/D K RUSSELL 99-Multi-Discip

**NGT 00-051-070 University of Michigan - Ann Arbor 5242**  
 GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 06/02/1993-06/30/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 G TRYGGVASON HQ/D A HOLLAND 46-Mech Engr

**NGT23-5802 University of Michigan - Ann Arbor 5250**  
 GSRP BASIC  
*Period Obligations*  
 06/01/1984-12/31/1993 FY93: \$0 TOTAL: \$1,010,857  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D J WEINTRAUB HQ/F C OWENS 49-Engr, NEC

**NGT 00-051-120 University of Michigan - Ann Arbor 5243**  
 GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 06/09/1993-06/30/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D C MARTIN MSFC/F SIX 47-Materials Engr

**NAG 1-1175 Wayne State University 5251**  
 ACTIVE CONTROL OF PANEL VIBRATIONS INDUCED BY A  
 BOUNDARY-LAYER FLOW  
*Period Obligations*  
 08/10/1990-09/30/1993 FY93: \$13,842 TOTAL: \$51,305  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 P L CHOW LARC/L MAESTRELLO 41-Aero Engr  
 ....C A POWELL

**NGT 00-051-126 University of Michigan - Ann Arbor 5244**  
 GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 07/13/1993-07/31/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 E A RUNDENSTEINER HQ/D HOLLAND 22-Computer Science

**NAG 3-833 Wayne State University 5252**  
 RADIATION ALLOY MATERIALS STUDY  
*Period Obligations*  
 11/25/1987-11/30/1993 FY93: \$0 TOTAL: \$159,958  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J R WOODYARD LERC/D J BRINKER 45-Elec Engr

**NGT 00-051-137 University of Michigan - Ann Arbor 5245**  
 GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 07/28/1993-08/31/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 L KILLEEN HQ/D HOLLAND 33-Oceanography

**NAG 3-1140 Wayne State University 5253**  
 FUEL/AIR PROC IN MULTI-VENTURI-TUBE FUEL INJ FOR A DV GAS  
 TURB APPL  
*Period Obligations*  
 02/12/1990-11/30/1993 FY93: \$87,499 TOTAL: \$335,014  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M C LAI LERC/R R TACINA 41-Aero Engr

**NGT 00-051-166 University of Michigan - Ann Arbor 5246**  
 GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 07/14/1993-08/31/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 B E GILCHRIST MSFC/F SIX 45-Elec Engr

**NAG 3-1265 Wayne State University 5254**  
 MEASUREMENT AND MODELING OF SOOTING TURBULENT JET DI  
 FFUSION FLAMES UNDER NORMAL AND REDUCED GRAVITY CON  
*Period Obligations*  
 03/21/1991-12/31/1993 FY93: \$85,000 TOTAL: \$210,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J C KU LERC/P S GREENBERG 46-Mech Engr

# **NASA'S UNIVERSITY PROGRAM** **MICHIGAN (Continued)**

**NAG 3-1281 Wayne State University 5255**  
ANALYSIS OF MATERIALS USED IN THE ADVANCED PHOTOVOLTAIC EXPERIMENT

Period	Obligations	
05/27/1991-10/31/1992	FY93: \$0	TOTAL: \$25,000
Prin. Invest.	NASA Tech. Officer	CASE Category
J R WOODYARD	LERC/D J BRINKER	45-Elec Engr

**NAG 5-2098 Wayne State University 5256**  
ESTIMATION OF NET CARBON FLUX OVER THE FIFE SITE U SING GROUND AND SATELLITE DATA

Period	Obligations	
09/15/1992-09/14/1993	FY93: \$100,000	TOTAL: \$100,000
Prin. Invest.	NASA Tech. Officer	CASE Category
N S GOEL	GSFC/F G HALL	11-Astronomy
J M NORMAN	....P SELLEERS	

**NAG 5-2237 Wayne State University 5257**  
BOREAL FOREST COMMUNITY COMPOSITION AND STRUCTURE, PHOTOSYNTHESIS, REMOTE SENSING, SCALING AND NET...

Period	Obligations	
04/09/1993-04/14/1994	FY93: \$10,000	TOTAL: \$10,000
Prin. Invest.	NASA Tech. Officer	CASE Category
N S GOEL	GSFC/F G HALL	39-Env Sci, NEC
	....P SELLERS	

**NAGW 3260 Wayne State University 5258**  
NAGW-3260/WAYNE STATE UNIV/ARCHITECTURALLY REALISTIC MODELS FOR OPTICAL RADIATION REGIME IN VEGETATION

Period	Obligations	
11/27/1992-09/30/1994	FY93: \$203,039	TOTAL: \$203,039
Prin. Invest.	NASA Tech. Officer	CASE Category
N S GOEL	HQ/D E WICKLAND	39-Env Sci, NEC
	....A C JANETOS	

**NGT 00-051-074 Wayne State University 5259**  
GRADUATE STUDENT RESEARCHERS PROGRAM

Period	Obligations	
05/27/1993-06/30/1994	FY93: \$22,000	TOTAL: \$22,000
Prin. Invest.	NASA Tech. Officer	CASE Category
R G REYNOLDS	HQ/D HOLLAND	22-Computer Science

**NAG 3-1025 Western Michigan University 5260**  
NASA GSOSTATS PROJECT VERSION 3.0 PHASE III

Period	Obligations	
03/22/1989-10/01/1993	FY93: \$4,951	TOTAL: \$260,888
Prin. Invest.	NASA Tech. Officer	CASE Category
M C KERSTETTER	LERC/J E HOLLANSWORTH	22-Computer Science
D MOTZKIN		

**NCC 2-493 Western Michigan University 5261**  
DEVELOPMENT OF A LIGHT WEIGHT SELF-CONTAINED FLIGHTINSTRUMENTATION AND DATA ACQUISITION SYSTEM

Period	Obligations	
09/01/1987-12/31/1993	FY93: \$6,397	TOTAL: \$478,844
Prin. Invest.	NASA Tech. Officer	CASE Category
A W HOADLEY	ARC/R K BOGUE	46-Mech Engr
	....K W ILIFF	

## **MINNESOTA**

**NAG 5-1325 Augsburg College 5262**  
ANALYSIS OF MAGNETOMETER DATA/WAVE SIGNALS

Period	Obligations	
01/22/1990-03/31/1992	FY93: \$0	TOTAL: \$39,981
Prin. Invest.	NASA Tech. Officer	CASE Category
M J ENGBRETSON	GSFC/J A SLAVIN	19-Phys Sci, NEC
	....R A HOFFMAN	

**NAGW 1567 Augsburg College 5263**  
A CORRELATIVE INVESTIGATION OF THE PROPAGATION OF ULF WAVE

Period	Obligations	
12/21/1988-12/31/1992	FY93: \$0	TOTAL: \$89,993
Prin. Invest.	NASA Tech. Officer	CASE Category
M J ENGBRETSON	HQ/M M MELLOTT	13-Physics
	....T W PERRY	

**NAG 9-623 Bemidji State University 5264**  
EFFECT OF RADIATIONS ON THE RODENT LENS EPITHELIUM

Period	Obligations	
06/30/1992-06/01/1994	FY93: \$35,000	TOTAL: \$68,200
Prin. Invest.	NASA Tech. Officer	CASE Category
A L LINDGREN	JSC/C YANG	51-Biological Sci

**NAG 8-192 Mankato State University 5265**  
PROJECT JOVE

Period	Obligations	
04/25/1991-08/06/1994	FY93: \$30,007	TOTAL: \$104,007
Prin. Invest.	NASA Tech. Officer	CASE Category
J HAKKILA	MSFC/F SIX	99-Multi-Discip
H SHENG		
E BOYD		

**NAG 1-821 Univ of Minnesota - Minneapolis-St Paul 5266**  
APPLICATION OF NONLINEAR FEEDBACK CONTROL THEORY TO SUPERMANEUVERABLE AIRCRAFT

Period	Obligations	
09/23/1987-12/15/1991	FY93: \$732	TOTAL: \$193,254
Prin. Invest.	NASA Tech. Officer	CASE Category
W L GARRARD	LARC/B J BACON	41-Aero Engr
D F ENNS	....A J OSTROFF	

**NAG 1-1166 Univ of Minnesota - Minneapolis-St Paul 5267**  
DYNAMIC EFFECTS OF FILM COATINGS ON STABILITY AND TRANSITIONS

Period	Obligations	
08/20/1990-08/15/1992	FY93: \$0	TOTAL: \$15,000
Prin. Invest.	NASA Tech. Officer	CASE Category
D D JOSEPH	LARC/C L STREETT	41-Aero Engr
	....A KUMAR	

**NAG 1-1254 Univ of Minnesota - Minneapolis-St Paul 5268**  
VIBRATION ATTENUATION OF THE NASA LANGLEY EVOLUTIONARY STRUCTURE EXPERIMENT USING H AND STRUCTURED SI

Period	Obligations	
05/03/1991-06/30/1994	FY93: \$53,000	TOTAL: \$119,000
Prin. Invest.	NASA Tech. Officer	CASE Category
G J BALAS	LARC/E S ARMSTRONG	42-Astro Engr

**NASA'S UNIVERSITY PROGRAM  
MINNESOTA (Continued)**

**NAG 1-1268 Univ of Minnesota - Minneapolis-St Paul 5269**  
MODELING INTERNAL RADIATIVE TRANSPORT IN CRYSTAL G  
ROWTH PROCESSES

Period	Obligations	
04/19/1991-10/31/1993	FY93: \$0	TOTAL: \$129,999
Prin. Invest.	NASA Tech. Officer	CASE Category
J J DERBY	LARC/I O CLARK	19-Phys Sci, NEC

**NAG 3-1024 Univ of Minnesota - Minneapolis-St Paul 5276**  
NUMERICAL PREDICTION OF THE FLUID FLOW AND HEAT TRAN  
SFER IN TRANSITIONAL AND TURBULENT OSCILLATORY FLOW

Period	Obligations	
03/20/1989-12/22/1993	FY93: \$25,000	TOTAL: \$195,650
Prin. Invest.	NASA Tech. Officer	CASE Category
S V PATANKAR	LERC/R C TEW	49-Engr, NEC
	....J E DUDENHOEFER	

**NAG 1-1380 Univ of Minnesota - Minneapolis-St Paul 5270**  
FEEDBACK CONTROL LAWS FOR HIGHLY MANEUVERABLE  
AIRCRAFT

Period	Obligations	
02/13/1992-01/31/1994	FY93: \$70,017	TOTAL: \$134,012
Prin. Invest.	NASA Tech. Officer	CASE Category
W L GARRARD	LARC/B J BACON	41-Aero Engr
G BALAS		

**NAG 3-1249 Univ of Minnesota - Minneapolis-St Paul 5277**  
MEASUREMENTS IN A TRANSITIONAL BOUNDARY LAYER ON A  
CONCAVE SURFACE

Period	Obligations	
03/01/1991-02/21/1994	FY93: \$60,000	TOTAL: \$180,000
Prin. Invest.	NASA Tech. Officer	CASE Category
T W SIMON	LERC/F F SIMON	46-Mech Engr

**NAG 1-1470 Univ of Minnesota - Minneapolis-St Paul 5271**  
COMPUTATIONAL TECHNIQUES FOR FLOWS WITH FINITE- RATE  
CONDENSATION

Period	Obligations	
12/17/1992-12/09/1993	FY93: \$36,700	TOTAL: \$36,700
Prin. Invest.	NASA Tech. Officer	CASE Category
G V CANDLER	LARC/L R HUNT	41-Aero Engr

**NAG 3-1332 Univ of Minnesota - Minneapolis-St Paul 5278**  
ARC CATHODE ATTACHMENT STUDY

Period	Obligations	
02/27/1992-01/14/1994	FY93: \$40,000	TOTAL: \$65,000
Prin. Invest.	NASA Tech. Officer	CASE Category
J V HEBERLEIN	LERC/C J SARMIENTO	46-Mech Engr
	....F M CURRAN	

**NAG 1-1498 Univ of Minnesota - Minneapolis-St Paul 5272**  
COMPUTATIONAL METHODS FOR THE SIMULATION OF HYPER-  
SONIC RE-ENTRY FLOWS

Period	Obligations	
05/25/1993-06/15/1994	FY93: \$37,000	TOTAL: \$37,000
Prin. Invest.	NASA Tech. Officer	CASE Category
G V CANDLER	LARC/K SUTTON	41-Aero Engr
	....P A GNOFFO	

**NAG 5-529 Univ of Minnesota - Minneapolis-St Paul 5279**  
DYNAMICS EXPLORER MAGNETOMETER EXPERIMENT

Period	Obligations	
04/01/1985-03/31/1993	FY93: \$0	TOTAL: \$239,858
Prin. Invest.	NASA Tech. Officer	CASE Category
L J CAHILL	GSFC/G D BULLOCK	19-Phys Sci, NEC
	....R A HOFFMAN	

**NAG 2-606 Univ of Minnesota - Minneapolis-St Paul 5273**  
FAR INFRARED SPECTRAL MEASUREMENTS OF CLASSICAL N OVAE  
USING THE KAO

Period	Obligations	
11/16/1989-09/30/1991	FY93: \$0	TOTAL: \$56,213
Prin. Invest.	NASA Tech. Officer	CASE Category
R D GEHRZ	ARC/L C HAUGHNEY	11-Astronomy

**NAG 5-1447 Univ of Minnesota - Minneapolis-St Paul 5280**  
ULTRAVIOLET SPECTROSCOPY OF FOUR CRITICAL LBV'S

Period	Obligations	
08/20/1990-09/14/1992	FY93: \$0	TOTAL: \$16,600
Prin. Invest.	NASA Tech. Officer	CASE Category
K DAVIDSON	GSFC/D WEST	11-Astronomy

**NAG 2-749 Univ of Minnesota - Minneapolis-St Paul 5274**  
SPECIFICATION OF TOLERABLE AVIATION WORKLOAD THREE  
SHOLDS AND THE ASSOCIATED ROLE OF STRATEGIES IN ...

Period	Obligations	
12/19/1991-09/30/1992	FY93: \$0	TOTAL: \$60,228
Prin. Invest.	NASA Tech. Officer	CASE Category
P A HANCOCK	ARC/S G HART	69-Psych, NEC

**NAG 5-1766 Univ of Minnesota - Minneapolis-St Paul 5281**  
B (E) SUPERGIANTS IN THE MAGELLANIC CLOUDS

Period	Obligations	
09/13/1991-09/14/1992	FY93: \$0	TOTAL: \$14,000
Prin. Invest.	NASA Tech. Officer	CASE Category
R M HUMPHREYS	GSFC/D WEST	11-Astronomy

**NAG 3-598 Univ of Minnesota - Minneapolis-St Paul 5275**  
INVSTGN OF HEAT TRSFANDHYDRODYNAMIC IN OSCILLATING  
FLOWS WITH APPLICATION TO STIRLING ENGINE CMPNTS

Period	Obligations	
12/27/1984-12/29/1993	FY93: \$25,000	TOTAL: \$380,000
Prin. Invest.	NASA Tech. Officer	CASE Category
T W SIMON	LERC/J DUDENHOEFER	13-Physics
J SEUME	....R TEW	

**NAG 5-1768 Univ of Minnesota - Minneapolis-St Paul 5282**  
THE CARBON ABUNDANCE IN SBS 0335-052 AND THE TIME  
EVOLUTION OF C/O

Period	Obligations	
09/13/1991-09/14/1993	FY93: \$0	TOTAL: \$6,000
Prin. Invest.	NASA Tech. Officer	CASE Category
E D SKILLMAN	GSFC/D WEST	11-Astronomy

**NAG 5-1846 Univ of Minnesota - Minneapolis-St Paul 5283**  
ASSESSING THE POTENTIAL IMPACT OF GLOBAL CLIMATE C  
HANGES ON SOILS AS SINK OR SOURCE OF . . .

Period	Obligations	
12/10/1991-06/14/1993	FY93: \$0	TOTAL: \$67,500
Prin. Invest.	NASA Tech. Officer	CASE Category
H H CHENG	GSFC/L S WALTER	11-Astronomy



**NASA'S UNIVERSITY PROGRAM  
MINNESOTA (Continued)**

**NAG 5-2108 Univ of Minnesota - Minneapolis-St Paul 5284**  
DEVELOPMENT OF A GENERALIZED FRAMEWORK FOR IDENTIFYING AND STUDYING SCALE INVARIANT RELATIONSHIPS..

Period	Obligations	
10/08/1992-10/14/1993	FY93: \$85,450	TOTAL: \$85,450
Prin. Invest.	NASA Tech. Officer	CASE Category
E	GSFC/R F CAHALAN	31-Atmos Sci
FOUFOULA-GEORGIOU		

**NAG 6-11 Univ of Minnesota - Minneapolis-St Paul 5285**  
INVESTIGATION OF AURORAL ELECTRODYNAMICS

Period	Obligations	
04/23/1981-07/22/1992	FY93: \$0	TOTAL: \$561,892
Prin. Invest.	NASA Tech. Officer	CASE Category
L J CAHILL	GSFC/L J EARLY	13-Physics
P M KINTNER	....R H PLESS	

**NAG 8-855 Univ of Minnesota - Minneapolis-St Paul 5286**  
ASSEMBLY AND OPERATIONS ANALYSIS OF LUNAR TELESCOPE

Period	Obligations	
10/11/1990-07/01/1993	FY93: \$0	TOTAL: \$31,945
Prin. Invest.	NASA Tech. Officer	CASE Category
W L GARRARD	MSFC/M E NEIN	11-Astronomy
A VANO		

**NAG 9-60 Univ of Minnesota - Minneapolis-St Paul 5287**  
RARE GAS STUDIES ON LUNAR MATERIALS

Period	Obligations	
02/01/1983-03/01/1994	FY93: \$0	TOTAL: \$1,549,204
Prin. Invest.	NASA Tech. Officer	CASE Category
R O PEPIN	JSC/I D BROWNE	19-Phys Sci, NEC

**NAG 9-110 Univ of Minnesota - Minneapolis-St Paul 5288**  
ANOMALOUS ISOTOPIC ABUNDANCES IN EXTRATE

Period	Obligations	
04/23/1985-04/01/1994	FY93: \$0	TOTAL: \$338,312
Prin. Invest.	NASA Tech. Officer	CASE Category
A O NIER	JSC/I D BROWNE	47-Materials Engr

**NAG 9-449 Univ of Minnesota - Minneapolis-St Paul 5289**  
FINITE ELEMENT METHODOLOGY OF DEVEL COMPRESSIBLE FLOWS

Period	Obligations	
08/01/1990-08/01/1994	FY93: \$25,000	TOTAL: \$81,814
Prin. Invest.	NASA Tech. Officer	CASE Category
T TEZDYUAR	JSC/C LI	29-Math/Cmputer, NEC

**NAG 9-534 Univ of Minnesota - Minneapolis-St Paul 5290**  
LUNAR SIMULANT DEVELOPMENT

Period	Obligations	
09/10/1991-04/01/1993	FY93: \$0	TOTAL: \$30,000
Prin. Invest.	NASA Tech. Officer	CASE Category
P WEIBLEN	JSC/D S MCDAY	32-Geological Sci

**NAGW 800 Univ of Minnesota - Minneapolis-St Paul 5291**  
KINETICS AND MECHANISMS OF STRATOSPHERIC CHLORINE RELEASE FROM CHLOROFLOUROMETHYL SPECIES

Period	Obligations	
09/01/1985-01/31/1994	FY93: \$106,960	TOTAL: \$738,369
Prin. Invest.	NASA Tech. Officer	CASE Category
R W CARR	HQ/M J KURYLO	31-Atmos Sci
	....R F HAMPSON	

**NAGW 1431 Univ of Minnesota - Minneapolis-St Paul 5292**  
SATELLITE INVENTORY OF MINNESOTA FOREST RESOURCES

Period	Obligations	
09/02/1988-12/31/1992	FY93: \$0	TOTAL: \$496,093
Prin. Invest.	NASA Tech. Officer	CASE Category
M E BAUER	HQ/W HUNTRESS	39-Env Sci, NEC
	....S G TILFORD	

**NAGW 1584 Univ of Minnesota - Minneapolis-St Paul 5293**  
CONVECTION ALGORITHMS FOR MULTIPROCESSING SUPERCONDUCTORS

Period	Obligations	
12/28/1988-02/28/1993	FY93: \$0	TOTAL: \$238,614
Prin. Invest.	NASA Tech. Officer	CASE Category
D A YUEN	HQ/J K ALEXANDER	22-Computer Science
	....D A HOLLAND	

**NAGW 1934 Univ of Minnesota - Minneapolis-St Paul 5294**  
ANALYSIS OF DATA OBTAINED BY THE HEAO.3 SPACECRAFT

Period	Obligations	
01/02/1990-03/31/1992	FY93: \$0	TOTAL: \$140,463
Prin. Invest.	NASA Tech. Officer	CASE Category
C J WADDINGTON	HQ/W V JONES	13-Physics
	....J C LING	

**NAGW 1957 Univ of Minnesota - Minneapolis-St Paul 5295**  
GEOPHYSICAL AND GEODYNAMICAL INVESTIGATIONS BASED ON LAGEO II SATELLITE DATA

Period	Obligations	
04/23/1990-03/31/1994	FY93: \$60,000	TOTAL: \$220,000
Prin. Invest.	NASA Tech. Officer	CASE Category
D A YUEN	HQ/M BALTUCK	32-Geological Sci

**NAGW 2004 Univ of Minnesota - Minneapolis-St Paul 5296**  
STUDIES OF ULTRA HEAVY COSMIC RAY NUCLEI

Period	Obligations	
05/29/1990-11/30/1993	FY93: \$85,019	TOTAL: \$398,946
Prin. Invest.	NASA Tech. Officer	CASE Category
C J WADDINGTON	HQ/W V JONES	13-Physics
	....J C LING	

**NAGW 2324 Univ of Minnesota - Minneapolis-St Paul 5297**  
INFRARED PHOTOMETRY AND SPECTROSCOPY OF BRIGHT COMETS

Period	Obligations	
12/11/1990-11/30/1992	FY93: \$0	TOTAL: \$155,006
Prin. Invest.	NASA Tech. Officer	CASE Category
R G GEHRZ	HQ/J H RAHE	11-Astronomy

**NAGW 2466 Univ of Minnesota - Minneapolis-St Paul 5298**  
MASS SPECTROMETER DEVELOPMENT FOR MOLECULAR ELEMENTAL AND ISOTOPIC ANALYSIS AT THE SURFACE OF MARS

Period	Obligations	
06/13/1991-06/30/1994	FY93: \$50,676	TOTAL: \$142,423
Prin. Invest.	NASA Tech. Officer	CASE Category
K MAUERSBERGER	HQ/W L QUAIDE	19-Phys Sci, NEC

**NASA'S UNIVERSITY PROGRAM  
MINNESOTA (Continued)**

**NAGW 2548 Univ of Minnesota - Minneapolis-St Paul 5299**  
NAGW-2548/UNIV MINNESOTA/NUMERICAL SIMULATION OF COSMIC  
RAY ACCELERATION IN SHOCKS  

Period	Obligations	
06/13/1991-02/28/1994	FY93: \$30,000	TOTAL: \$90,863
Prin. Invest.	NASA Tech. Officer	CASE Category
T W JONES	HQ/W V JONES	13-Physics
	....J C LING	

**NAGW 2653 Univ of Minnesota - Minneapolis-St Paul 5300**  
STUDY OF TIME-DEPENDENT MAGNETOSPHERE/IONOSPHERE C  
OUPLING ON INTERMEDIATE AND SMALL SCALES  

Period	Obligations	
07/15/1991-04/30/1994	FY93: \$55,692	TOTAL: \$160,399
Prin. Invest.	NASA Tech. Officer	CASE Category
R L LYSAK	HQ/M M MELLOTT	11-Astronomy
	....J D BOHLIN	

**NAGW 2690 Univ of Minnesota - Minneapolis-St Paul 5301**  
A THEORETICAL STUDY OF MACROSCOPIC COLLECTIVE ENTR Y  
OF SOLAR WIND ENERGY AND MOMENTUM  

Period	Obligations	
08/22/1991-05/31/1994	FY93: \$55,129	TOTAL: \$163,154
Prin. Invest.	NASA Tech. Officer	CASE Category
R L LYSAK	HQ/M M MELLOTT	13-Physics
	....J D BOHLIN	

**NAGW 3014 Univ of Minnesota - Minneapolis-St Paul 5302**  
DETECTION AND INTERACTIONS OF ULTRA HEAVY NUCLEI A ND  
COSMIC RAY PROPAGATION  

Period	Obligations	
04/03/1992-02/28/1994	FY93: \$50,181	TOTAL: \$114,372
Prin. Invest.	NASA Tech. Officer	CASE Category
C J WADDINGTON	HQ/W V JONES	13-Physics
	....J D BOHLIN	

**NAGW 3102 Univ of Minnesota - Minneapolis-St Paul 5303**  
PHYSICAL PROPERTIES OF PARTIALLY MOLTEN AMMONIA WA TER  
ICE PERMEABILITY AND RHEOLOGY  

Period	Obligations	
06/17/1992-03/31/1994	FY93: \$30,300	TOTAL: \$59,300
Prin. Invest.	NASA Tech. Officer	CASE Category
D L KOHISTEDT	HQ/J M BOYCE	32-Geological Sci

**NAGW 3103 Univ of Minnesota - Minneapolis-St Paul 5304**  
ENVIRONMENTAL STUDIES MATHEMATICAL, COMPUTATIONAL AND  
STATISTICAL ANALYSIS  

Period	Obligations	
06/08/1992-12/31/1992	FY93: \$0	TOTAL: \$5,000
Prin. Invest.	NASA Tech. Officer	CASE Category
A FRIEDMAN	HQ/K H BERGMAN	39-Env Sci, NEC
W MILLERJR	....R A SCHIFFER	

**NAGW 3189 Univ of Minnesota - Minneapolis-St Paul 5305**  
NAGW-3189/UNIV MINNESOTA/RELATIVE ABUNDANCE AND STAR  
FORMATION HISTORIES OF DWARF GALAXIES  

Period	Obligations	
08/19/1992-07/31/1994	FY93: \$86,036	TOTAL: \$167,202
Prin. Invest.	NASA Tech. Officer	CASE Category
E D SKILLMAN	HQ/G R RIEGLER	11-Astronomy

**NAGW 3324 Univ of Minnesota - Minneapolis-St Paul 5306**  
THE CONDENSATE FRACTION IN SUPERFLUID HELIUM DROPL ETS  

Period	Obligations	
01/13/1993-12/31/1993	FY93: \$90,000	TOTAL: \$90,000
Prin. Invest.	NASA Tech. Officer	CASE Category
J W HALEY	HQ/C RAY	13-Physics

**NAGW 3336 Univ of Minnesota - Minneapolis-St Paul 5307**  
RARE GAS AND NITROGEN STUDIES ON LUNAR, METEORITIC ,  
AND SELECTED TERRESTRIAL MATERIALS  

Period	Obligations	
01/13/1993-12/14/1993	FY93: \$183,961	TOTAL: \$183,961
Prin. Invest.	NASA Tech. Officer	CASE Category
R O PEPIN	HQ/H C BRINTON	13-Physics

**NAGW 3610 Univ of Minnesota - Minneapolis-St Paul 5308**  
ANOMALOUS ISOTOPIC ABUNDANCES IN EXTRATERRESTRIAL MAT  

Period	Obligations	
05/21/1993-03/31/1994	FY93: \$50,837	TOTAL: \$50,837
Prin. Invest.	NASA Tech. Officer	CASE Category
A NIER	HQ/J BOYCE	32-Geological Sci

**NAGW 3751 Univ of Minnesota - Minneapolis-St Paul 5309**  
AN EXPERIMENTAL STUDY OF ATMOSPHERIC HOMOGENEOUS N  
UCLEATION  

Period	Obligations	
09/23/1993-05/31/1994	FY93: \$47,651	TOTAL: \$47,651
Prin. Invest.	NASA Tech. Officer	CASE Category
P M MCMURRY	HQ/J A KAYE	31-Atmos Sci
	....A C JANETOS	

**NAS 5-31219 Univ of Minnesota - Minneapolis-St Paul 5310**  
SCIENTIFIC AND ENGINEERING SUPPORT FOR THE ULYSSES/ STO  
INSTRUMENT  

Period	Obligations	
06/06/1991-09/30/1995	FY93: \$665,200	TOTAL: \$1,117,200
Prin. Invest.	NASA Tech. Officer	CASE Category
K GEOTZ	GSFC/B KLEIN	11-Astronomy
P KELLOGG	....R STONE	

**NAS 5-32454 Univ of Minnesota - Minneapolis-St Paul 5311**  
MAGNETIC MASS SPECTROMETERS  

Period	Obligations	
03/04/1993-01/03/1995	FY93: \$485,000	TOTAL: \$485,000
Prin. Invest.	NASA Tech. Officer	CASE Category
K MAUERSBERGER	GSFC/S BENNER	13-Physics

**NAS 5-33048 Univ of Minnesota - Minneapolis-St Paul 5312**  
RADIO AND ePLASMA WAVE EXPERIMENT  

Period	Obligations	
03/15/1990-07/15/1993	FY93: \$507,000	TOTAL: \$2,936,566
Prin. Invest.	NASA Tech. Officer	CASE Category
P KELLOG	GSFC/M L KAISER	42-Astro Engr
K GOETZ		

**NCA 2-622 Univ of Minnesota - Minneapolis-St Paul 5313**  
AERODYNAMICS OF MICROBURSTS  

Period	Obligations	
06/17/1991-06/15/1992	FY93: \$0	TOTAL: \$17,915
Prin. Invest.	NASA Tech. Officer	CASE Category
T S LUNDGREN	ARC/P MOIN	41-Aero Engr

# **NASA'S UNIVERSITY PROGRAM** **MINNESOTA (Continued)**

**NCC 2-809 Univ of Minnesota - Minneapolis-St Paul 5314**  
 OPTIMAL TAKEOFF PROCEDURES FOR A CATEGORY A HELICOPTERS

Period	Obligations	
07/08/1993-10/14/1993	FY93: \$15,000	TOTAL: \$15,000
Prin. Invest.	NASA Tech. Officer	CASE Category
Y ZHAO	ARC/R T CHEN	41-Aero Engr

**NCC 3-238 Univ of Minnesota - Minneapolis-St Paul 5315**  
 COMPUTATION OF RADIATION HEAT TRANSFER IN AEROENGINE COMBUSTORS

Period	Obligations	
12/20/1991-12/14/1993	FY93: \$99,799	TOTAL: \$199,599
Prin. Invest.	NASA Tech. Officer	CASE Category
S V PATANKAR	LERC/H S LEE	41-Aero Engr

**NGT 00-030-017 Univ of Minnesota - Minneapolis-St Paul 5316**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM

Period	Obligations	
11/09/1990-02/28/1994	FY93: \$0	TOTAL: \$66,000
Prin. Invest.	NASA Tech. Officer	CASE Category
A M BRAUNSCHEWIG	HQ/G ASRAR	39-Env Sci, NEC

**NGT 00-030-052 Univ of Minnesota - Minneapolis-St Paul 5317**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM

Period	Obligations	
09/09/1991-08/31/1994	FY93: \$22,000	TOTAL: \$66,000
Prin. Invest.	NASA Tech. Officer	CASE Category
J J MARTI	HQ/D M BUTLER	31-Atmos Sci
K MAUERSBERGER	....G S WILSON	

**NGT 00-030-055 Univ of Minnesota - Minneapolis-St Paul 5318**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM

Period	Obligations	
09/17/1991-08/31/1993	FY93: \$0	TOTAL: \$44,000
Prin. Invest.	NASA Tech. Officer	CASE Category
P KUMAR	HQ/D M BUTLER	39-Env Sci, NEC
E F GEORGIOU	....G S WILSON	

**NGT 00-030-111 Univ of Minnesota - Minneapolis-St Paul 5319**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM

Period	Obligations	
10/30/1992-08/31/1994	FY93: \$44,000	TOTAL: \$44,000
Prin. Invest.	NASA Tech. Officer	CASE Category
R J WEBER	HQ/G ASRAR	99-Multi-Discip
	....D M BUTLER	

**NGT 00-030-213 Univ of Minnesota - Minneapolis-St Paul 5320**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM

Period	Obligations	
08/26/1993-08/31/1994	FY93: \$22,000	TOTAL: \$22,000
Prin. Invest.	NASA Tech. Officer	CASE Category
E F GEORGIOU	HQ/G ASRAR	39-Env Sci, NEC
	....D M BUTLER	

**NGT 00-040-027 Univ of Minnesota - Minneapolis-St Paul 5321**  
 NATIONAL SPACE GRANT COLLEGE AND FELLOWSHIP PROGRAM

Period	Obligations	
04/03/1991-02/28/1994	FY93: \$208,000	TOTAL: \$528,000
Prin. Invest.	NASA Tech. Officer	CASE Category
P W WEBLER	HQ/E T SCHWARTZ	99-Multi-Discip

**NGT 00-050-421 Univ of Minnesota - Minneapolis-St Paul 5322**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM

Period	Obligations	
07/31/1989-08/31/1994	FY93: \$0	TOTAL: \$70,000
Prin. Invest.	NASA Tech. Officer	CASE Category
S BANERJEE	HQ/F C OWENS	19-Phys Sci, NEC

**NGT 00-050-478 Univ of Minnesota - Minneapolis-St Paul 5323**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM

Period	Obligations	
08/31/1989-06/30/1992	FY93: \$6,447	TOTAL: \$55,553
Prin. Invest.	NASA Tech. Officer	CASE Category
J ALMLOF	HQ/F C OWENS	13-Physics

**NGT 00-050-563 Univ of Minnesota - Minneapolis-St Paul 5324**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM

Period	Obligations	
06/29/1990-06/30/1993	FY93: \$0	TOTAL: \$66,000
Prin. Invest.	NASA Tech. Officer	CASE Category
A BEITZ	HQ/F C OWENS	56-Medical Sciences

**NGT 00-050-684 Univ of Minnesota - Minneapolis-St Paul 5325**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM

Period	Obligations	
09/17/1990-06/30/1993	FY93: \$0	TOTAL: \$44,000
Prin. Invest.	NASA Tech. Officer	CASE Category
P J KELLOGG	HQ/F C OWENS	13-Physics

**NGT 00-050-785 Univ of Minnesota - Minneapolis-St Paul 5326**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM

Period	Obligations	
05/10/1991-06/30/1994	FY93: \$22,000	TOTAL: \$66,000
Prin. Invest.	NASA Tech. Officer	CASE Category
J V CARLIS	HQ/F C OWENS	22-Computer Science
L BARNETT		

**NGT 00-050-830 Univ of Minnesota - Minneapolis-St Paul 5327**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM

Period	Obligations	
07/02/1991-06/30/1994	FY93: \$22,000	TOTAL: \$66,000
Prin. Invest.	NASA Tech. Officer	CASE Category
E P FENDER	HQ/F C OWENS	46-Mech Engr
J HEBERLEIN		

**NGT 00-051-090 Univ of Minnesota - Minneapolis-St Paul 5328**  
 GRADUATE STUDENT RESEARCHERS PROGRAM

Period	Obligations	
05/17/1993-06/30/1994	FY93: \$22,000	TOTAL: \$22,000
Prin. Invest.	NASA Tech. Officer	CASE Category
J W HALLEY	HQ/B CARPENTER	13-Physics

**NGT 00-051-169 Univ of Minnesota - Minneapolis-St Paul 5329**  
 GRADUATE STUDENT RESEARCHERS PROGRAM

Period	Obligations	
06/29/1993-06/30/1994	FY93: \$22,000	TOTAL: \$22,000
Prin. Invest.	NASA Tech. Officer	CASE Category
A LYNNNTZIS	ARC/M MOORE	41-Aero Engr

# NASA'S UNIVERSITY PROGRAM

## MINNESOTA (Continued)

**NSG-1431 Univ of Minnesota - Minneapolis-St Paul 5330**  
 NEUTRAL CONSTITUENT MEASUREMENTS IN THE STRATOSPHERE

Period	Obligations	
06/23/1977-01/31/1994	FY93: \$95,729	TOTAL: \$2,643,191
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
K MAUERSBERGER	LARC/A G BESWICK	31-Atmos Sci
A O NIER		

**NSG-5373 Univ of Minnesota - Minneapolis-St Paul 5331**  
 EXPERIMENTS EMPLOYING A ROCKET BORNE ELECTRON ACCELERATOR

Period	Obligations	
06/15/1979-12/31/1991	FY93: \$0	TOTAL: \$1,009,490
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
P J KELLOGG	GSFC/L J EARLY	13-Physics
W BERNSTEIN	....R H PLESS	

**NAG 3-1367 University of Minnesota-Duluth 5332**  
 I COME HERE TO LEARN: RECRUITMENT AND RETENTION OF MINORITIES IN SCIENCE, MATHEMATICS, AND ENGINEERING

Period	Obligations	
09/17/1992-09/01/1993	FY93: \$92,599	TOTAL: \$181,089
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
T B HOLST	LERC/R ROMERO	99-Multi-Discip
	....R F LAWRENCE	

**NCA 2-819 University of Minnesota-Duluth 5333**  
 A HYBRID COMPUTATIONAL METHODOLOGY FOR HYPERSONIC TRANSITIONAL FLOWS: CONTINUUM FORMULATION

Period	Obligations	
06/03/1993-05/31/1995	FY93: \$39,965	TOTAL: \$39,965
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
G V CANDLER	ARC/G S DEIWERT	41-Aero Engr

## MISSISSIPPI

**NAG 1-1125 Jackson State University 5334**  
 END-EFFECTOR-JOINT CONJUGATES FOR ROBOTIC ASSEMBLY OF LARGE TRUSS STRUCTURES IN SPACE: SECOND GENERA

Period	Obligations	
05/01/1990-12/31/1993	FY93: \$1	TOTAL: \$172,115
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
W V BREWER	LARC/M D RHODES	46-Mech Engr
E P RASIS	....R W WILL	
H R SHIH		

**NAG 1-1389 Jackson State University 5335**  
 ESTABLISHMENT OF AN INTEGRATED EARTH SYSTEMS SCIENCES INTERDISCIPLINARY PROGRAM FOR MINORITY STUDENTS

Period	Obligations	
01/24/1992-01/08/1993	FY93: \$1	TOTAL: \$132,001
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
D LOVE	LARC/R L YANG	39-Env Sci, NEC

**NGT 00-050-638 Jackson State University 5336**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM

Period	Obligations	
07/26/1990-07/31/1992	FY93: \$0	TOTAL: \$41,258
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
M H GRIFFIN	HQ/F C OWENS	22-Computer Science

**NGT 00-090-034 Jackson State University 5337**  
 YOUNG SCIENTIST PROGRAM

Period	Obligations	
09/25/1990-09/15/1993	FY93: \$89,006	TOTAL: \$336,851
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
R SULLIVAN	HQ/M MARGOLIS	99-Multi-Discip
W LUPTON		

**NAG 1-226 Mississippi State University 5338**  
 TRANSONIC VISCOUS-INVISID INTERACTION USING EULER AND INVERSE BOUNDARY-LAYER EQUATIONS

Period	Obligations	
10/27/1981-02/28/1994	FY93: \$25,000	TOTAL: \$397,334
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
D L WHITFIELD	LARC/F C THAMES	41-Aero Engr
	....J W EDWARDS	

**NAG 1-1271 Mississippi State University 5339**  
 ANALYSIS OF METHODS FOR REDUCTION OF INDUCED DRAG

Period	Obligations	
05/03/1991-09/30/1993	FY93: \$50,000	TOTAL: \$130,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
M J JANUS	LARC/D W BARTLETT	41-Aero Engr
	....P C ARCARA JR.	

**NAG 1-1369 Mississippi State University 5340**  
 AERODYNAMIC CALCULATIONS FOR SHOCK NOISE PREDICTION

Period	Obligations	
01/15/1992-07/09/1994	FY93: \$25,000	TOTAL: \$75,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
D L WHITFIELD	LARC/J W POSEY	41-Aero Engr
	....F FARASSAT	

**NAG 2-824 Mississippi State University 5341**  
 GRID GENERATION FIELD INTERPRETATION AND FIELD SOLUTION IN A TIGHTLY INTEGRATED DISTRIBUTED ...

Period	Obligations	
02/26/1993-02/28/1994	FY93: \$100,000	TOTAL: \$100,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
M L STOKES	ARC/T A LASINSKI	22-Computer Science
	....LEVIT	

**NAG 3-767 Mississippi State University 5342**  
 3-D UNSTEADY EULER SOLUTIONS FOR INTERACTING BLADE ROWS

Period	Obligations	
12/08/1986-12/16/1993	FY93: \$50,000	TOTAL: \$340,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
D L WHITFIELD	LERC/D HOYNIK	41-Aero Engr
	....D L HUFF	

**NAG 3-869 Mississippi State University 5343**  
 COMPUTATION OF ROTOR STATOR INTERACTION USING THE NAVIER-STOKES EQUATIONS

Period	Obligations	
01/20/1988-01/31/1994	FY93: \$70,000	TOTAL: \$375,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
D WHITFIELD	LERC/J M SANZ	41-Aero Engr

**NAG 3-983 Mississippi State University 5344**  
 COMPUTATIONAL FLUID DYNAMICS FOR AEROLASTIC ANALYSIS

Period	Obligations	
01/17/1989-01/09/1994	FY93: \$45,000	TOTAL: \$242,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
D L WHITFIELD	LERC/G L STEFKO	41-Aero Engr
T SWAFFORD	....L J KIRALY	

**NASA'S UNIVERSITY PROGRAM**  
**MISSISSIPPI (Continued)**

**NAG 3-1073**      **Mississippi State University**      **5345**  
 PARALLEL APPL RES FOR COMP FLU DYN (CFO) PROB  
*Period*      *Obligations*  
 09/21/1989-06/03/1993      FY93: \$0      TOTAL: \$284,908  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
 J D TROTTER      LERC/R A BLECH      29-Math/Cmputer,NEC  
 J K OWENS      ....J R SZNCH  
 J C HARDEN

**NAG 8-545**      **Mississippi State University**      **5352**  
 STUDY ENTITLED: 'STANDARDIZATION OF THE CARBON-CARBON  
 AND CARBON-PHENOLIC MATERIALS AND PROCESSES.'  
*Period*      *Obligations*  
 08/27/1985-08/31/1992      FY93: \$0      TOTAL: \$583,917  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
 W B HALL      MSFC/L A FIKES      47-Materials Engr  
 ....M L STUCKER

**NAG 3-1157**      **Mississippi State University**      **5346**  
 UNSTEADY THREE-DIMENSIONAL INCOMPRESSIBLE NAVIER-S  
 TOKES ALGORITHM FOR ROTATING MACHINERY  
*Period*      *Obligations*  
 04/10/1990-11/05/1993      FY93: \$0      TOTAL: \$105,000  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
 D L WHITFIELD      LERC/J J ADAMCZYK      41-Aero Engr

**NAG 8-866**      **Mississippi State University**      **5353**  
 AN INVESTIGATION OF NETWORKING TECHNIQUES FOR THE ASRM  
 FACILITY  
*Period*      *Obligations*  
 02/06/1991-01/28/1993      FY93: \$82,061      TOTAL: \$235,687  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
 R J MOORHEAD      MSFC/G L SETTLE      45-Elec Engr  
 W D SMITH      ....W W ROBINSON  
 F M INGELS

**NAG 3-1170**      **Mississippi State University**      **5347**  
 UNSTEADY FLOW VISCOUS/INVISCID INTERNAL FLOW ANALY SIS  
*Period*      *Obligations*  
 05/10/1990-12/31/1991      FY93: \$4,400      TOTAL: \$62,645  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
 T W SWAPFORD      LERC/J C RICHARD      41-Aero Engr

**NAG 8-936**      **Mississippi State University**      **5354**  
 R/S CARBON COMPOSITE MATERIALS TEST  
*Period*      *Obligations*  
 09/17/1992-09/30/1993      FY93: \$78,094      TOTAL: \$78,094  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
 W B HALL      MSFC/C G UPTON      43-Chem Engr  
 ....M L STUCKER

**NAG 3-1228**      **Mississippi State University**      **5348**  
 INTERACTIVE GRID SYSTEMS FOR TURBOMACHINERY APPLIC  
 ATION  
*Period*      *Obligations*  
 12/12/1990-12/30/1993      FY93: \$50,000      TOTAL: \$145,000  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
 J M JANUS      LERC/D L HUFF      41-Aero Engr  
 B K SONI

**NAG 8-965**      **Mississippi State University**      **5355**  
 PROTEIN RESEARCH  
*Period*      *Obligations*  
 06/15/1993-06/30/1993      FY93: \$110,000      TOTAL: \$110,000  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
 W WILSON      MSFC/D CARTER      19-Phys Sci, NEC

**NAG 3-1357**      **Mississippi State University**      **5349**  
 NUMERICAL SIMULATION OF VISCOUS INCOMPRESSIBLE FLOW IN  
 PUMPS AND IMPELLERS  
*Period*      *Obligations*  
 10/06/1992-09/30/1993      FY93: \$0      TOTAL: \$45,000  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
 D L WHITFIELD      LERC/J P VERES      41-Aero Engr

**NAG 8-1012**      **Mississippi State University**      **5356**  
 INVESTIGATION OF TEMPORAL DECOMPOSITION IN PAYLOAD  
 EXPERIMENT SCHEDULING  
*Period*      *Obligations*  
 09/14/1993-06/30/1994      FY93: \$24,829      TOTAL: \$24,829  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
 S BALLINGTON      MSFC/B GUYNES      29-Math/Cmputer,NEC

**NAG 5-2006**      **Mississippi State University**      **5350**  
 AN INVESTIGATION OF ERROR CHARACTERISTICS AND CODE  
 PERFORMANCE  
*Period*      *Obligations*  
 07/01/1992-06/30/1994      FY93: \$50,000      TOTAL: \$103,700  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
 W J EBEL      GSFC/W H MILLER      49-Engr, NEC  
 F M INGELS      ....R M MULLER

**NAG 9-624**      **Mississippi State University**      **5357**  
 NASA-HBCU SCIENCE AND ENGINEERING INITIATIVE  
*Period*      *Obligations*  
 07/10/1992-09/30/1993      FY93: \$0      TOTAL: \$20,000  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
 M D TRYMAN      JSC/C M HOSKINS      99-Multi-Discip

**NAG 8-104**      **Mississippi State University**      **5351**  
 GRANT ENTITLED 'AN INVESTIGATION OF ERROR CORRECTING  
 TECHNIQUES FOR OMV DIGITIZED DATA.'  
*Period*      *Obligations*  
 05/12/1988-09/21/1992      FY93: \$262      TOTAL: \$132,228  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
 F M INGELS      MSFC/H L THOMAS      45-Elec Engr

**NAS 3-23901**      **Mississippi State University**      **5358**  
 SCIENTIFIC SUPPORT FOR AN ORBITER EXPERIMENT ON SOLID  
 SURFACE COMBUSTION  
*Period*      *Obligations*  
 12/19/1984-12/17/1994      FY93: \$128,000      TOTAL: \$845,638  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
 R A ALTENKIRCH      LERC/K SACRSTEDER      49-Engr, NEC

**NASA'S UNIVERSITY PROGRAM**  
**MISSISSIPPI (Continued)**

**NAS 8-36949 Mississippi State University 5359**  
 ADAPTIVE COMPUTATIONAL METHODS FOR HIGH REYNOLD  
 NUMBER INTERNAL FLOWS IN ADVANCED PROPULSION SYSTEMS  
*Period Obligations*  
 03/24/1989-10/31/1992 FY93: \$416 TOTAL: \$243,573  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J F THOMPSON MSFC/P K MC CONNAUGHEY 49-Engr, NEC  
 ....H V MC CONNAUGHEY

**NAS 8-38857 Mississippi State University 5360**  
 CAG I COMPUTER AIDED INTERFACE  
*Period Obligations*  
 05/16/1991-08/27/1993 FY93: \$75,000 TOTAL: \$200,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 B K SONI MSFC/G A WILHOLD 29-Math/Computer, NEC  
 ....T G BENJAMIN

**NCC 3-221 Mississippi State University 5361**  
 LOW-VELOCITY, OPPOSED-FLOW FLAME SPREAD IN A TRANS  
 PORT-CONTROLLED, MICROGRAVITY ENVIRONMENT  
*Period Obligations*  
 06/19/1991-11/14/1993 FY93: \$100,746 TOTAL: \$336,981  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R A ALTENKIRCH LERC/J A SALZMAN 19-Phys Sci, NEC  
 S BHATTA CHARJEE ....H D ROSS

**NGT 00-050-694 Mississippi State University 5362**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 05/07/1991-07/07/1994 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 K KOENIG HQ/F C OWENS 42-Astro Engr

**NGT 00-050-950 Mississippi State University 5363**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 08/04/1992-08/15/1994 FY93: \$22,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R A ALTENKIRCH LERC/F MONTEGANI 46-Mech Engr

**NSG-1577 Mississippi State University 5364**  
 TRANSFORMATION OF TWO AND THREE DIMENSIONAL REGIONS  
 BY ELLIPTIC SYSTEMS  
*Period Obligations*  
 11/16/1978-03/31/1994 FY93: \$70,013 TOTAL: \$555,765  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J F THOMPSON LARC/R E SMITH JR 21-Mathematics  
 C W MASTIN ....J N SHOOSMITH

**NAG 8-225 Mississippi Valley State Univ. 5365**  
 JOVE  
*Period Obligations*  
 02/05/1992-10/04/1994 FY93: \$18,500 TOTAL: \$64,283  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R WILLIAMS MSFC/F SIX 22-Computer Science

**NAG13-23 Pearl River Junior College 5366**  
 GEOGRAPHIC INFORMATION SYSTEM AND TRANSFER PROGRAM  
*Period Obligations*  
 11/03/1992-11/02/1994 FY93: \$24,999 TOTAL: \$24,999  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J COLEMAN SSC/R GALE 19-Phys Sci, NEC

**NAG 2-786 University of Mississippi - Medical 5367**  
 Center  
 OTOLITH-CANAL CONVERGENCE IN VESTIBULAR NUCLEI NEU  
 RONS  
*Period Obligations*  
 06/05/1992-03/31/1994 FY93: \$57,688 TOTAL: \$115,576  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J D DICKMAN ARC/M L CORCORAN 51-Biological Sci  
 ....C E WADE

**NAG 1-1076 University of Mississippi - University 5368**  
 RESEARCH IN ATMOSPHERIC ACOUSTICS  
*Period Obligations*  
 12/19/1989-12/31/1992 FY93: \$0 TOTAL: \$339,298  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 H E BASS LARC/W L WILLSHIRE 13-Physics  
 R RASPET

**NAG 1-1385 University of Mississippi - University 5369**  
 STUDY OF SONIC BOOM WAVEFORMS PROPAGATING THROUGH A  
 TURBULENT ATMOSPHERE  
*Period Obligations*  
 02/21/1992-02/28/1993 FY93: \$0 TOTAL: \$54,270  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 H E BASS LARC/G L MCANINCH 41-Aero Engr  
 R RASPET ....W L WILLSHIRE

**NAG 1-1460 University of Mississippi - University 5370**  
 RESEARCH IN ATMOSPHERIC ACOUSTICS  
*Period Obligations*  
 12/18/1992-06/30/1994 FY93: \$138,174 TOTAL: \$138,174  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 H E BASS LARC/W L WILLSHIRE 13-Physics  
 R RASPET ....G L MCANINCH

**NAS 8-39745 University of Mississippi - University 5371**  
 ULTRASONIC NDE SCANS OF BODIES OF ARBITRARY SHAPE  
*Period Obligations*  
 06/21/1993-10/20/1993 FY93: \$29,822 TOTAL: \$29,822  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R HICKLING MSFC/M W SUITS 45-Elec Engr  
 ....D BROWN

**NGT 00-040-028 University of Mississippi - University 5372**  
 NATIONAL SPACE GRANT COLLEGE AND FELLOWSHIP PROGRA M  
*Period Obligations*  
 05/21/1991-02/28/1994 FY93: \$412,950 TOTAL: \$562,950  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M R DINGERSON HQ/E T SCHWARTZ 99-Multi-Discip

**NAG 8-973 University of Southern Mississippi 5373**  
 POLYMERIZATION IN MICROGRAVITY  
*Period Obligations*  
 06/09/1993-06/14/1994 FY93: \$100,000 TOTAL: \$100,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 L J MATHIAS MSFC/J P DOWNEY 19-Phys Sci, NEC

**NGT 00-060-003 University of Southern Mississippi 5374**  
 SUMMER FACULTY FELLOWSHIP PROGRAM  
*Period Obligations*  
 05/14/1990-04/30/1993 FY93: \$0 TOTAL: \$505,391  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J E MILLER HQ/A S MCGEE 49-Engr, NEC  
 ....E T SCHWARTZ

# NASA'S UNIVERSITY PROGRAM MISSOURI

## MISSOURI

**NAG 2-454 Saint Louis University 5375**  
SKELETAL COLLAGEN TURNOVER BY THE OSTEOBLAST  
*Period* *Obligations*  
03/01/1987-12/31/1993 FY93: \$70,000 TOTAL: \$419,668  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
N C PARTRIDGE ARC/E M HOLTON 51-Biological Sci

**NGT 00-050-673 Saint Louis University 5376**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period* *Obligations*  
07/25/1990-07/31/1993 FY93: \$0 TOTAL: \$66,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
N C PARTRIDGE HQ/F C OWENS 51-Biological Sci

**NGT 00-051-145 Saint Louis University 5377**  
GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period* *Obligations*  
07/28/1993-08/31/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
N C PARTRIDGE HQ/R WHITE 56-Medical Sciences

**NAG 2-589 University of Missouri - Columbia 5378**  
PORTABLE LIFE SUPPORT SYSTEM/HEAT REJECTION  
*Period* *Obligations*  
08/04/1989-12/31/1992 FY93: \$30,833 TOTAL: \$141,572  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J B MILES ARC/B W WEBBON 41-Aero Engr  
..../W C LOMAX

**NAG 3-1420 University of Missouri - Columbia 5379**  
CROSS EFFECTS IN MICROGRAVITY FLOWS  
*Period* *Obligations*  
01/08/1993-03/31/1993 FY93: \$90,000 TOTAL: \$90,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
S K LOYALKA LERC/W M DUVAL 47-Materials Engr

**NAG 3-1477 University of Missouri - Columbia 5380**  
USING CONCURRENT, MULTI-LEVEL SUBSTRUCTURING TECHNIQUES TO PERFORM FIN ELEMENT BASED ANALYSIS OF LG SC MO  
*Period* *Obligations*  
04/22/1989-03/29/1994 FY93: \$25,000 TOTAL: \$25,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
G D GUTE LERC/S S PAI 49-Engr, NEC  
..../D A HOPKINS

**NAG 9-404 University of Missouri - Columbia 5381**  
RESEARCH ON TARGETING METHODS FOR MANUAL CONTROLLED DOCKING  
*Period* *Obligations*  
10/23/1989-11/01/1993 FY93: \$0 TOTAL: \$56,372  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J KNOPP JSC/R JUDAY 41-Aero Engr  
..../C K LAND

**NAG 9-466 University of Missouri - Columbia 5382**  
DEMONSTRATION OF OPTICAL CORRELATION FOR MARS LANDER APPLICATION  
*Period* *Obligations*  
08/23/1990-10/01/1993 FY93: \$0 TOTAL: \$92,034  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J KNOPP JSC/R JUDAY 49-Engr, NEC

**NAG 9-606 University of Missouri - Columbia 5383**  
FIBER OPTIC IMAGING SYSTEM DESIGN  
*Period* *Obligations*  
05/12/1992-05/01/1993 FY93: \$0 TOTAL: \$29,800  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J KNOPP JSC/R JUDAY 41-Aero Engr

**NAG 9-711 University of Missouri - Columbia 5384**  
JOINT CORRELATION SURGICAL LASER POINTING  
*Period* *Obligations*  
07/30/1993-07/01/1994 FY93: \$14,827 TOTAL: \$14,827  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J KNAPP JSC/R JUDAY 56-Medical Sciences

**NAGW 2634 University of Missouri - Columbia 5385**  
STRAIN ACCUMULATION MONITORING IN THE NEW MADRID SEISMIC ZONE USING THE GLOBAL POSITIONING SYSTEM  
*Period* *Obligations*  
09/09/1991-04/30/1992 FY93: \$0 TOTAL: \$62,820  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R L BAUER HQ/M BALTUCK 32-Geological Sci

**NAGW 3302 University of Missouri - Columbia 5386**  
STRESSES AND STRAINS WITHIN THE STABLE NORTH AMERICAN PLATE  
*Period* *Obligations*  
01/06/1993-12/31/1993 FY93: \$56,560 TOTAL: \$56,560  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J F ENGEH HQ/M BALTUCK 32-Geological Sci

**NCC 2-566 University of Missouri - Columbia 5387**  
TRANSONIC THREE DIMENSIONAL FLOW EXPERIMENTATION  
*Period* *Obligations*  
11/15/1988-12/31/1992 FY93: \$0 TOTAL: \$161,918  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J B MILES ARC/J L BROWN 41-Aero Engr

**NCC 2-823 University of Missouri - Columbia 5388**  
CONTROL AND HEAT REJECTION ISSUES FOR PORTABLE LIFE SUPPORT SYSTEMS  
*Period* *Obligations*  
08/23/1993-12/31/1993 FY93: \$23,764 TOTAL: \$23,764  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J B MILES ARC/B W WEBBON 49-Engr, NEC  
S S NAIR ..../R N BRETOI

**NASA'S UNIVERSITY PROGRAM**  
**MISSOURI (Continued)**

**NAG 1-861 University of Missouri - Rolla 5389**  
 CHARACTERIZATION OF EXTINCTION AND REIGNITION OF HYDROGEN-AIR DIFFUSION  
*Period Obligations*  
 03/02/1988-05/31/1993 FY93: \$0 TOTAL: \$158,643  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 K M ISAAC LARC/G L PELLET 43-Chem Engr  
 ....G B NORTHAM

**NAG 1-1189 University of Missouri - Rolla 5390**  
 ANALYTICAL AND COMPUTATIONAL INVESTIGATION OF SUPERSONIC COMBUSTOR FLOW FIELDS  
*Period Obligations*  
 09/26/1990-09/24/1993 FY93: \$60,000 TOTAL: \$185,167  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D W RIGGINS LARC/C R MCCLINTON 41-Aero Engr  
 ....S H STACK

**NAG 1-1482 University of Missouri - Rolla 5391**  
 ANALYSIS OF UNSTEADY PRESSURE DISTRIBUTIONS AROUND AEROELASTIC WING MODELS IN TRANSONIC FLOW  
*Period Obligations*  
 02/05/1993-02/03/1994 FY93: \$22,523 TOTAL: \$22,523  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 F FINAISH LARC/R M BENNETT 41-Aero Engr  
 ....W A SILVA

**NAG 2-720 University of Missouri - Rolla 5392**  
 INVESTIGATION OF COMBUSTION AEROSOLS AS A POTENTIAL SINK FOR NOX IN THE EXPANDING EXHAUST PLUME ..  
*Period Obligations*  
 08/12/1991-12/31/1993 FY93: \$140,000 TOTAL: \$260,567  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 P D WHITEFIELD ARC/E CONDON 31-Atmos Sci  
 D E HAGEN ....B TOON

**NAG 3-178 University of Missouri - Rolla 5393**  
 STUDY OF SOUND TRANSMISSION IN HIGH SPEED FLOWS  
*Period Obligations*  
 04/09/1981-06/30/1993 FY93: \$0 TOTAL: \$460,739  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 W EVERSMAN LERC/J H DITTMAR 41-Aero Engr  
 T WICKS ....K J BAUMEISTER

**NAG 8-898 University of Missouri - Rolla 5394**  
 KINETICS OF PHASE TRANSFORMATIONS IN GLASS FORMING SYSTEM  
*Period Obligations*  
 11/14/1992-11/14/1994 FY93: \$99,982 TOTAL: \$153,147  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 C S RAY MSFC/E C ETRIDGE 12-Chemistry  
 ....E M STRAUSS

**NAGW 2846 University of Missouri - Rolla 5395**  
 ADVANCED PHOTONIC MATERIALS PRODUCED BY CONTAINERLESS PROCESSING  
*Period Obligations*  
 01/24/1992-11/30/1993 FY93: \$80,000 TOTAL: \$160,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D E DAY HQ/B M CARPENTER 13-Physics  
 C S CHANDRA

**NAS 8-38259 University of Missouri - Rolla 5396**  
 NEW DIRECTIONS IN PHTHALOCYANINE PIGMENTS  
*Period Obligations*  
 06/08/1990-08/07/1992 FY93: \$0 TOTAL: \$55,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M R VAN DE MARK MSFC/D V TRINH 12-Chemistry  
 ....R T CONGO

**NAGW 2474 University of Missouri - Saint Louis 5397**  
 METHANE ABSORPTION SPECTROSCOPY  
*Period Obligations*  
 05/23/1991-05/31/1993 FY93: \$0 TOTAL: \$136,733  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J J O'BRIEN HQ/W L QUAIDE 11-Astronomy

**NAG 1-1174 Washington University 5398**  
 ANALYSIS OF LDEF EXPERIMENT A0187-2: CHEMICAL AND ISOTOPIC MEASUREMENTS OF MICROMETEORITIDS BY 2ND  
*Period Obligations*  
 08/14/1990-08/14/1994 FY93: \$0 TOTAL: \$548,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 E ZINNER LARC/L A TEICHMAN 47-Materials Engr  
 R M WALKER ....J L JONES

**NAG 1-1279 Washington University 5399**  
 MODE INTERACTION ANALYSIS OF STIFFENED COMPOSITE SHELLS USING 'LOCALLY BUCKLED' SHELL ELEMENTS  
*Period Obligations*  
 05/24/1991-11/08/1993 FY93: \$7,170 TOTAL: \$40,888  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S SRIDHARAN LARC/J H STARNES 41-Aero Engr

**NAG 1-1373 Washington University 5400**  
 INTERGRATION OF DYNAMIC, AERODYNAMIC AND STRUCTURAL OPTIMIZATION OF HELICOPTER ROTOR BLADES  
*Period Obligations*  
 01/24/1992-01/23/1994 FY93: \$64,000 TOTAL: \$148,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D A PETERS LARC/H M ADELMAN 41-Aero Engr  
 ....J I PRITCHARD

**NAG 2-728 Washington University 5401**  
 DEVELOPMENT OF AN UNSTEADY WAKE THEORY APPROPRIATE FOR AEROELASTIC ANALYSES OF ROTORS IN HOVER ...  
*Period Obligations*  
 08/21/1991-08/31/1994 FY93: \$70,000 TOTAL: \$220,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D A PETERS ARC/R A ORMISTON 41-Aero Engr

**NAG 2-865 Washington University 5402**  
 INFLUENCE OF HIGH PRESSURE HYDROGEN ENVIRONMENT ON CREEP DEFORMATION OF MO-RE, HAYNES 188, AND .....  
*Period Obligations*  
 08/10/1993-08/31/1994 FY93: \$162,641 TOTAL: \$162,641  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S M SASTRY ARC/H G NELSON 47-Materials Engr



**NASA'S UNIVERSITY PROGRAM**  
**MISSOURI (Continued)**

**NAG 5-1422 Washington University 5403**  
RESEARCH RELATIVE LARGE ISOTAPE SPECTROMETER  
*Period Obligations*  
08/14/1990-12/31/1992 FY93: \$10,099 TOTAL: \$141,548  
*Prin. Invest. NASA Tech. Officer CASE Category*  
W R BINNS GSFC/R E STREITMATTER 11-Astronomy  
M H ISRAEL ....F J ORMES

**NAG 5-2246 Washington University 5404**  
MARS OBSERVER LASER ALTIMETER  
*Period Obligations*  
04/30/1993-04/30/1994 FY93: \$60,000 TOTAL: \$60,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R J PHILLIPS GSFC/D E SMITH 39-Env Sci, NEC

**NAG 8-873 Washington University 5405**  
KINETICS OF PHASE TRANSFORMATION IN GLASS FORMING SYSTEMS  
*Period Obligations*  
04/10/1991-04/15/1994 FY93: \$60,000 TOTAL: \$176,758  
*Prin. Invest. NASA Tech. Officer CASE Category*  
K F KELTON MSFC/E C ETHRIDGE 13-Physics  
C S RAY

**NAG 9-7 Washington University 5406**  
LUNAR/PLANETARY SURFACE DYNAMICS  
*Period Obligations*  
02/01/1980-12/15/1993 FY93: \$0 TOTAL: \$1,970,184  
*Prin. Invest. NASA Tech. Officer CASE Category*  
C M HOHENBERG JSC/I D BROWNE 31-Atmos Sci

**NAG 9-55 Washington University 5407**  
MEASUREMENTS OF EXTRATERRESTRIAL  
*Period Obligations*  
02/01/1983-09/01/1993 FY93: \$0 TOTAL: \$5,033,100  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R M WALKER JSC/I D BROWNE 32-Geological Sci  
....V R CORSIGLIA

**NAG 9-56 Washington University 5408**  
STUDIES OF LUNAR ROCKS  
*Period Obligations*  
02/01/1983-10/01/1993 FY93: \$0 TOTAL: \$2,122,826  
*Prin. Invest. NASA Tech. Officer CASE Category*  
L A HASKIN JSC/I D BROWNE 32-Geological Sci  
R L KOROTEV  
D J LINDSTROM

**NAG 9-292 Washington University 5409**  
AB-SR + SM-ND GEOCHRONOLOGY OF DIAMONDS  
*Period Obligations*  
04/01/1988-10/31/1993 FY93: \$0 TOTAL: \$323,318  
*Prin. Invest. NASA Tech. Officer CASE Category*  
F A PODOSEK JSC/I D BROWNE 32-Geological Sci

**NAG 9-622 Washington University 5410**  
SOLUTION OF ELASTIC PLASTIC STRESS ANALYSIS PROBLEMS BY P-VERSION OF FINITE ELEMENT METHOD  
*Period Obligations*  
09/03/1992-10/31/1993 FY93: \$68,816 TOTAL: \$68,816  
*Prin. Invest. NASA Tech. Officer CASE Category*  
B SZABO JSC/J J MCMAHON 13-Physics

**NAG 9-653 Washington University 5411**  
CULTURE OF PORCINE ISLET TISSUE/EVALUATION OF MICROGRAVITATIONAL CONDITIONS  
*Period Obligations*  
10/28/1992-12/01/1993 FY93: \$160,000 TOTAL: \$160,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D W SCHARP GSFC/G SPAULDING 51-Biological Sci

**NAG 9-684 Washington University 5412**  
ION MICROPROBE STUDIES OF THE METEOROID AND ORBITAL DEBRIS COMPLEX  
*Period Obligations*  
04/26/1993-05/01/1994 FY93: \$40,000 TOTAL: \$40,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
E ZINNER JSC/M ZOLENSKY 13-Physics

**NAGW 432 Washington University 5413**  
STRUCTURE AND EVOLUTION OF OUTER PLANET SATELLITE  
*Period Obligations*  
03/01/1983-10/31/1993 FY93: \$38,700 TOTAL: \$378,660  
*Prin. Invest. NASA Tech. Officer CASE Category*  
W B MCKINNON HQ/J UNDERWOOD 32-Geological Sci  
....J M BOYCE

**NAGW 1358 Washington University 5414**  
TOWARD GLOBAL PERSPECTIVES ON CONTINENTAL TECTONICS  
*Period Obligations*  
08/01/1988-12/31/1993 FY93: \$190,000 TOTAL: \$1,087,337  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R E ARVIDSON HQ/M BALTUCK 32-Geological Sci  
....T J PIEPER

**NAGW 1603 Washington University 5415**  
DEFINITION AND DEVELOPMENT OF RECOVERABLE INSTRUMENTS  
*Period Obligations*  
01/19/1989-09/30/1991 FY93: \$0 TOTAL: \$396,998  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R M WALKER HQ/P MAHAFFY 32-Geological Sci

**NAGW 1728 Washington University 5416**  
TRANSDUCTION OF THE GRAVITROPIC STIMULUS  
*Period Obligations*  
04/11/1980-09/31/1992 FY93: \$0 TOTAL: \$250,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
B G PICKARD HQ/J K ALEXANDER 51-Biological Sci  
....D A HOLLAND

**NAGW 1872 Washington University 5417**  
ANALYSIS OF REMOTE SENSING DATA FOR THE SURFACES OF THE TERRESTRIAL PLANETS  
*Period Obligations*  
07/16/1990-09/30/1993 FY93: \$174,750 TOTAL: \$632,999  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R E ARVIDSON HQ/T A MAXWELL 32-Geological Sci

**NAGW 1922 Washington University 5418**  
BASIC RESEARCH ON PRIMARY COSMIC RADIATION  
*Period Obligations*  
05/03/1990-10/31/1992 FY93: \$0 TOTAL: \$978,056  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J KLARMARN HQ/J LING 13-Physics

**NASA'S UNIVERSITY PROGRAM**  
**MISSOURI (Continued)**

**NAGW 2028 Washington University 5419**  
 MAGNETOSPHERIC PARTICLE ACCELERATION  
*Period Obligations*  
 05/29/1990-10/31/1992 FY93: \$0 TOTAL: \$59,368  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J I KATZ HQ/W V JONES 13-Physics  
 ....J C LING

**NAGW 2867 Washington University 5426**  
 KINETICS OF THERMALCHEMICAL REACTIONS IMPORTANT IN THE  
 VENUS ATMOSPHERIC SULFUR CYCLE  
*Period Obligations*  
 01/31/1992-12/31/1993 FY93: \$50,000 TOTAL: \$95,340  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 B T FEGLEY HQ/W L QUAIDE 11-Astronomy

**NAGW 2304 Washington University 5420**  
 STUDIES OF SOLAR NEBULA STRUCTURE AND EVOLUTION  
*Period Obligations*  
 02/26/1991-10/31/1993 FY93: \$65,000 TOTAL: \$235,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 F A PODOSEK HQ/J A NUTH 19-Phys Sci, NEC

**NAGW 2896 Washington University 5427**  
 MANAGEMENT OF THE LUNAR EXPLORATION SCIENCE WORKIN G  
 GROUP  
*Period Obligations*  
 02/20/1992-12/31/1992 FY93: \$0 TOTAL: \$50,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R J PHILLIPS HQ/C B PILCHER 32-Geological Sci

**NAGW 2333 Washington University 5421**  
 NAGW-2333/WASHINGTON UNIV/SOLAR WIND SAMPLE RETURN  
 INSTRUMENT  
*Period Obligations*  
 01/25/1991-10/31/1992 FY93: \$0 TOTAL: \$30,694  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 C M HOHENBERG HQ/W L QUAIDE 19-Phys Sci, NEC

**NAGW 2909 Washington University 5428**  
 THEORETICAL FOUNDATION OF GRAVITATIONAL PHYSICS EX  
 PERIMENTS IN SPACE  
*Period Obligations*  
 02/20/1992-12/31/1993 FY93: \$60,000 TOTAL: \$120,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 C M WILL HQ/R STACHNIK 11-Astronomy  
 ....E J WEILER

**NAGW 2423 Washington University 5422**  
 LUNAR ULTRAVIOLET-INFRARED MAPPING INTERFERMETRIC  
 SPECTROMETER  
*Period Obligations*  
 07/02/1991-12/31/1993 FY93: \$146,000 TOTAL: \$397,979  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 W H SMITH HQ/W L QUAIDE 19-Phys Sci, NEC

**NAGW 2918 Washington University 5429**  
 ANGULAR MOMENTUM TRANSFER IN CATAclysmic VARIABLES  
*Period Obligations*  
 02/27/1992-12/31/1993 FY93: \$27,000 TOTAL: \$54,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J I KATZ HQ/R STACHNIK 13-Physics  
 ....E J WEILER

**NAGW 2818 Washington University 5423**  
 AQUEOUS ALTERATIONS OF ORGANIC MATTER ON METEORITE  
 PARENT BODIES  
*Period Obligations*  
 01/03/1992-12/31/1994 FY93: \$61,407 TOTAL: \$103,451  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 E L SHOCK HQ/M MEYER 12-Chemistry

**NAGW 2990 Washington University 5430**  
 RESEARCH IN PARTICLE ASHOPHYSICS SMILI/HEAT  
*Period Obligations*  
 12/18/1991-11/30/1993 FY93: \$190,000 TOTAL: \$380,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J J BEATTY HQ/W V JONES 19-Phys Sci, NEC  
 ....J D BOHLIN

**NAGW 2836 Washington University 5424**  
 NAGW-2836/WASHINGTON UNIV/IMPROVEMENT OF CAPTURE  
 CELLS FOR COSMIC DUST EXTERIMENTS IN SPACE  
*Period Obligations*  
 01/17/1992-06/30/1993 FY93: \$0 TOTAL: \$150,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R W WALKER HQ/W L QUAIDE 12-Chemistry

**NAGW 3013 Washington University 5431**  
 DETECTION AND INTERACTIONS OF ULTRA HEAVY NUCLEI  
*Period Obligations*  
 04/03/1992-02/28/1994 FY93: \$65,000 TOTAL: \$111,990  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J KLARMANN HQ/W V JONES 13-Physics  
 ....J D BOHLIN

**NAGW 2861 Washington University 5425**  
 CHEMICAL MODELS OF THE PRESENT AND PRIMORDIAL ATMO  
 SPHERES OF THE GAS GIANT PLANETS  
*Period Obligations*  
 01/31/1992-12/31/1993 FY93: \$52,662 TOTAL: \$102,662  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 B T FEGLEY HQ/W L QUAIDE 11-Astronomy

**NAGW 3024 Washington University 5432**  
 PLANETARY INTERIOR MODELING AND TECTONIC IMPLICATI ONS  
*Period Obligations*  
 04/03/1992-12/31/1993 FY93: \$104,500 TOTAL: \$191,500  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R J PHILLIPS HQ/J M BOYCE 32-Geological Sci

**NAGW 3046 Washington University 5433**  
 COMPARATIVE EFFECTIVENESS OF A SERIES OF AUXINS IN  
 MODULATING THE PUTATIVE GRAVITROPIC  
*Period Obligations*  
 04/03/1992-12/31/1993 FY93: \$50,000 TOTAL: \$75,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 B G PICKARD HQ/T W HALSTEAD 51-Biological Sci

**NASA'S UNIVERSITY PROGRAM**  
**MISSOURI (Continued)**

**NAGW 3070 Washington University 5434**  
 KINETICS OF THERMOCHEMICAL GAS-SOLID REACTIONS IMP  
 ORTANT FOR VOLATILE RETENTION IN SOLAR NEBULA  
*Period Obligations*  
 05/06/1992-01/31/1994 FY93: \$57,000 TOTAL: \$89,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M B FEGLEY HQ/J A NUTH 19-Phys Sci, NEC

**NAGW 3343 Washington University 5435**  
 ANALYTICAL EXPERIMENTAL AND MODELING STUDIES OF LU NAR  
 AND TERRESTRIAL IGNEOUS ROCKS  
*Period Obligations*  
 01/15/1993-11/30/1993 FY93: \$252,350 TOTAL: \$252,350  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 L A HASKIN HQ/H C BRINTON 32-Geological Sci

**NAGW 3344 Washington University 5436**  
 NAGW-3344/WASHINGTON UNIV @ ST LOUIS/LUNAR AND  
 PLANETARY SURFACE DYNAMICS AND EARLY HISTORY  
*Period Obligations*  
 01/28/1993-12/14/1993 FY93: \$244,500 TOTAL: \$244,500  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 C M HOHENBERG HQ/H C BRINTON 32-Geological Sci

**NAGW 3371 Washington University 5437**  
 SOLID STATE AND MASS SPECTROMETRIC MEASUREMENTS OF  
 EXTRATERRESTRIAL MATERIALS  
*Period Obligations*  
 02/10/1993-02/28/1994 FY93: \$590,000 TOTAL: \$590,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R M WALKER HQ/J BOYCE 32-Geological Sci

**NAGW 3419 Washington University 5438**  
 SURFACE MODIFICATION OF VENOSIAN PLAINS AND MOUNTA INS  
*Period Obligations*  
 02/18/1993-03/14/1994 FY93: \$81,839 TOTAL: \$81,839  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R E ARVIDSON HQ/J T BERGSTRAHL 32-Geological Sci

**NAGW 3424 Washington University 5439**  
 BASIC RESEARCH ON PRIMARY COSMIC RADIATION  
*Period Obligations*  
 03/19/1993-10/31/1993 FY93: \$250,000 TOTAL: \$250,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J KLARMAN HQ/W V JONES 12-Chemistry  
 .../G L WITHBROE

**NAGW 3446 Washington University 5440**  
 INTER. OF MAG. GEO. DATA US. LAB. STU. OF MIN. AND ROCK  
 WEATH. ON VENUS  
*Period Obligations*  
 03/29/1993-03/31/1994 FY93: \$101,399 TOTAL: \$101,399  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 B FEAKY HQ/J T BERGSTRAHL 32-Geological Sci

**NAGW 3552 Washington University 5441**  
 FORMATION AND EVOLUTION OF IMPACT CRATERS ON VENUS  
*Period Obligations*  
 04/30/1993-03/31/1994 FY93: \$40,000 TOTAL: \$40,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 W B MCKINNON HQ/J T BERGSTRAHL 32-Geological Sci

**NAGW 3634 Washington University 5442**  
 ISOTOPIC STRUCTURE AND FINE-SCALE CHRONOLOGY IN PL  
 ANETARY MATERIALS  
*Period Obligations*  
 06/17/1993-03/31/1994 FY93: \$80,100 TOTAL: \$80,100  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 F PODESEK HQ/J BOYCE 32-Geological Sci

**NAGW 3701 Washington University 5443**  
 MAGMATIC AND TECTONIC EVOLUTION OF VENUS  
*Period Obligations*  
 08/03/1993-03/14/1994 FY93: \$71,372 TOTAL: \$71,372  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R J PHILLIPS HQ/J T BERGSTRAHL 32-Geological Sci

**NAG10-107 Washington University 5444**  
 DEVELOPMENT OF AN ANALOG INTERFACE PROCESSOR FOR USE  
 IN A DIGITAL HEARING AID  
*Period Obligations*  
 06/01/1992-11/30/1993 FY93: \$0 TOTAL: \$49,991  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R E MORLEY KSC/D DAVIS 99-Multi-Discip

**NAS 9-18383 Washington University 5445**  
 COSMIC DUST COLLECTION EXPERIMENT  
*Period Obligations*  
 10/02/1990-07/31/1992 FY93: \$188 TOTAL: \$179,812  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R WALKER JSC/L LUTZ 32-Geological Sci

**NCA 2-592 Washington University 5446**  
 REMOTE SENSING OF EARTHS ATMOSPHERE AND SURFACE US  
 ING A DIGITAL ARRAY SCANNED INTERFEROMETER  
*Period Obligations*  
 02/27/1991-03/31/1993 FY93: \$0 TOTAL: \$21,998  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 H SMITH ARC/P D HAMMER 31-Atmos Sci

**NGT 00-040-029 Washington University 5447**  
 NATIONAL SPACE GRANT COLLEGE AND FELLOWSHIP PROGRA M  
*Period Obligations*  
 06/05/1991-02/28/1994 FY93: \$170,000 TOTAL: \$490,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R E ARVIDSON HQ/E T SCHWARTZ 99-Multi-Discip

**NGT 00-050-629 Washington University 5448**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 07/24/1990-06/30/1993 FY93: \$0 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 W B MCKINNON HQ/F C OWENS 13-Physics

**NASA'S UNIVERSITY PROGRAM**  
**MISSOURI (Continued)**

**NGT 00-050-675 Washington University 5449**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 08/07/1990-07/31/1992 FY93: \$0 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 C M HOHENBERG HQ/F C OWENS 13-Physics

**NAG 5-1830 Montana State University 5456**  
 SIMULTANEOUS OBSERVATIONS OF SOME SEYFERT NUCLEI  
*Period Obligations*  
 11/22/1991-06/30/1993 FY93: \$0 TOTAL: \$13,982  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S TSURUTA GSFC/R PETRE 11-Astronomy

**NGT 00-050-676 Washington University 5450**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 08/17/1990-07/31/1992 FY93: \$0 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J KLARMANN HQ/F C OWENS 13-Physics

**NAG 8-230 Montana State University 5457**  
 TEMPORAL AND SPECTRAL STUDIES OF SEYFERT NUCLEI  
*Period Obligations*  
 03/02/1993-01/02/1993 FY93: \$0 TOTAL: \$20,498  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S TSURUTA MSFC/J VARGAS 11-Astronomy

**NGT 00-050-789 Washington University 5451**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 05/13/1991-06/30/1993 FY93: \$0 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J KLARMANN HQ/F C OWENS 13-Physics

**NAG 8-289 Montana State University 5458**  
 TEMPORAL AND SPECTRAL STUDIES OF SEYFERT NUCLEI  
*Period Obligations*  
 05/17/1993-01/31/1994 FY93: \$18,500 TOTAL: \$18,500  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S TSURUTA MSFC/J VARGAS 11-Astronomy

**NGT 00-051-061 Washington University 5452**  
 GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 06/15/1993-06/30/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 K F KELTON HQ/D A HOLLAND 13-Physics

**NAG 9-505 Montana State University 5459**  
 RAPID BACTERIAL TESTING FOR US SPACE STATION WATER SYSTEM USING IMAGE ANALYSIS  
*Period Obligations*  
 04/04/1991-04/01/1994 FY93: \$80,000 TOTAL: \$184,175  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 G A MCFETERS JSC/R L SAUER 56-Medical Sciences

**NSG-1601 Washington University 5453**  
 NON-DESTRUCTIVE EVALUATION OF COMPOSITE STRUCTURES USING FOURIER ANALYSIS OF ULTRASONIC SIGNALS  
*Period Obligations*  
 03/09/1979-03/14/1994 FY93: \$114,960 TOTAL: \$1,441,337  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J G MILLER LARC/P H JOHNSTON 13-Physics  
 ....J S HEYMAN

**NAGW 2208 Montana State University 5460**  
 SOME SELECTED PROBLEMS IN HIGH ENERGY SPACE ASTROPHYSICS  
*Period Obligations*  
 08/09/1990-12/31/1993 FY93: \$74,461 TOTAL: \$263,832  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S TSURUTA HQ/G S KUTTER 11-Astronomy  
 ....G R RIEGLER

**NAGW 2764 Montana State University 5461**  
 MOLECULAR AND GEOCHEMICAL ANALYSIS OF HOT SPRING CYCNOBACTERIAL AND CHLOROFLEXUS  
*Period Obligations*  
 11/08/1991-10/31/1993 FY93: \$120,799 TOTAL: \$230,799  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D M WARD HQ/J D RUMMEL 54-Env Biology

**MONTANA**

**NAG 8-262 Eastern Montana University 5454**  
 JOVE  
*Period Obligations*  
 12/30/1992-03/31/1993 FY93: \$33,145 TOTAL: \$33,145  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A F BENTLEY MSFC/F SIX 13-Physics

**NAGW 2951 Montana State University 5462**  
 RESEARCH IN GRAVITATIONAL ASTROPHYSICS  
*Period Obligations*  
 03/04/1992-03/31/1993 FY93: \$40,000 TOTAL: \$80,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 L A LINDBLOM HQ/R STACHNIK 11-Astronomy  
 ....E J WEILER

**NAG 1-1307 Montana State University 5455**  
 EXPERIMENTAL MEASUREMENTS OF HYPERSONIC FREE SHEAR LAYER STABILITY  
*Period Obligations*  
 07/12/1991-07/31/1992 FY93: \$0 TOTAL: \$30,246  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A DEMETRIADES LARC/S K ROBINSON 41-Aero Engr

**NCA 2-659 Montana State University 5463**  
 QUIET SUPERSONIC TUNNEL RESEARCH  
*Period Obligations*  
 09/17/1991-09/14/1993 FY93: \$0 TOTAL: \$45,334  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A DEMETRIADES ARC/D REDA 46-Mech Engr  
 ....L KING

**NASA'S UNIVERSITY PROGRAM**  
**MONTANA (Continued)**

**NGT 00-040-041** **Montana State University** **5464**  
NATIONAL SPACE GRANT COLLEGE AND FELLOWSHIP PROGRAM  
*Period* *Obligations*  
06/03/1991-02/28/1994 FY93: \$173,000 TOTAL: \$493,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
W A HISCOCK HQ/E T SCHWARTZ 99-Multi-Discip

**NGT 00-051-196** **Montana State University** **5465**  
GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period* *Obligations*  
09/20/1993-07/31/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J P WILSON LARC/E PRIOR 32-Geological Sci

**NAG 5-2065** **University of Montana** **5466**  
FIFE DATA ANALYSIS: TESTING BIOME-BGC PREDICTIONS FOR GRASSLANDS  
*Period* *Obligations*  
07/31/1992-08/14/1994 FY93: \$34,646 TOTAL: \$69,411  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R E HUNT GSFC/P J SELLERS 39-Env Sci, NEC  
S RUNNING  
W PARTON

**NAG 5-2297** **University of Montana** **5467**  
SIMULATION OF BOREAL ECOSYSTEM CARBON AND WATER BUDGETS: SCALING FROM LOCAL TO REGIONAL EXTENTS...  
*Period* *Obligations*  
07/12/1993-07/31/1994 FY93: \$35,000 TOTAL: \$35,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
S W RUNNING GSFC/F G HALL 39-Env Sci, NEC  
....P SELLERS

**NAG 8-235** **University of Montana** **5468**  
JOVE  
*Period* *Obligations*  
06/05/1992-07/15/1994 FY93: \$33,179 TOTAL: \$81,723  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
N W HINMAN MSFC/F SIX 32-Geological Sci  
D FRIEND  
J W SEARS

**NAGW 952** **University of Montana** **5469**  
NET PRIMARY PRODUCTION OF CONIFEROUS FORESTS  
*Period* *Obligations*  
10/01/1986-03/31/1994 FY93: \$165,000 TOTAL: \$1,083,402  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
S W RUNNING HQ/D E WICKLAND 39-Env Sci, NEC  
D F POTTS ....M J RUZEK  
L E BAND

**NAGW 1892** **University of Montana** **5470**  
PARAMETERIZATION, TESTING AND VALIDATION OF MICROCLIMATE AND ECOSYSTEM MODELS ON THE OREGON TRANSECT  
*Period* *Obligations*  
12/27/1989-03/31/1993 FY93: \$0 TOTAL: \$151,840  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
S W RUNNING HQ/D E WICKLAND 39-Env Sci, NEC  
R H WARING ....T J PIEPER  
D L PETERSON

**NAGW 3151** **University of Montana** **5471**  
NAGW-3151/UNIV MONTANA/ASSESSMENT OF ANTHROPOGENIC AND CLIMATIC IMPACTS ON THE GLOBAL CARBON CYCLE  
*Period* *Obligations*  
08/04/1992-04/30/1994 FY93: \$73,278 TOTAL: \$88,278  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R NEMANI HQ/R E MURPHY 39-Env Sci, NEC  
S W RUNNING ....D M BUTLER

**NAS 5-31368** **University of Montana** **5472**  
EOS MODIS INVESTIGATION FROM DR. STEVE RUNNING  
*Period* *Obligations*  
01/07/1992-12/14/2001 FY93: \$175,000 TOTAL: \$375,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
S W RUNNING GSFC/H OSEROFF 39-Env Sci, NEC

**NGT 00-030-007** **University of Montana** **5473**  
NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period* *Obligations*  
10/05/1990-08/31/1993 FY93: \$0 TOTAL: \$66,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
L L PIERCE HQ/G ASRAR 39-Env Sci, NEC

**NGT 00-030-169** **University of Montana** **5474**  
NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period* *Obligations*  
08/23/1993-08/31/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
G N RICHARDS HQ/G ASRAR 31-Atmos Sci  
....D M BUTLER

**NGT 00-030-216** **University of Montana** **5475**  
NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period* *Obligations*  
08/26/1993-08/31/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
S W RUNNING HQ/G ASRAR 39-Env Sci, NEC  
....D M BUTLER

**NEBRASKA**

**NAG 1-1447** **University of Nebraska - Lincoln** **5476**  
THEORETICAL EVALUATION OF THE RADIATION HAZARDS FROM COSMIC RAYS WITHIN SPACE VEHICLES  
*Period* *Obligations*  
08/26/1992-08/23/1993 FY93: \$0 TOTAL: \$30,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R KATZ LARC/F A CUCINOTTA 13-Physics  
....E J CONWAY

**NAG 3-95** **University of Nebraska - Lincoln** **5477**  
INTERCALATED CARBON FIBER CONDUCTOR FOR AEROSPACE USE  
*Period* *Obligations*  
08/28/1980-01/31/1994 FY93: \$45,000 TOTAL: \$543,482  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J A WOOLLAM LERC/D A JAWORSKE 45-Elec Engr

**NASA'S UNIVERSITY PROGRAM**  
**NEBRASKA (Continued)**

**NAG 3-154 University of Nebraska - Lincoln 5478**  
 -CONDUCTOR FOR MICROWAVE APPLICATIONS  
*Period Obligations*  
 03/10/1981-11/15/1992 FY93: \$0 TOTAL: \$682,652  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J A WOOLLAM LERC/S A ALTEROVITZ 13-Physics  
 P G SNYDER

**NAG 3-806 University of Nebraska - Lincoln 5479**  
 ERROR PROTECTION FOR DIGITAL IMAGE TRANS OVER NOISY CHANNELS  
*Period Obligations*  
 06/18/1987-05/13/1994 FY93: \$36,858 TOTAL: \$356,789  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 K SAYOOD LERC/W A WHYTE 45-Elec Engr  
 ....E F MILLER

**NAG 3-866 University of Nebraska - Lincoln 5480**  
 LASER DEPOSITION OF THIN FILM SUPERCONDUCTORS FOR MICRODUCTORS FOR MICROELECTRONICS PREP AND EVAL.  
*Period Obligations*  
 01/16/1988-06/17/1994 FY93: \$25,000 TOTAL: \$275,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J A WOOLAM LERC/J D WARNER 13-Physics  
 N J IANNO

**NAG 3-1261 University of Nebraska - Lincoln 5481**  
 THEORETICAL MODELING OF A HIGH ENERGY LASER PULSE FOCUSED WITHIN AN AEROSOL SPRAY  
*Period Obligations*  
 03/15/1991-07/14/1993 FY93: \$0 TOTAL: \$39,936  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J P BARTON LERC/L C LARRY 13-Physics  
 D R ALEXANDER

**NAG 5-894 University of Nebraska - Lincoln 5482**  
 MEASURING AND MODELING NEAR SURFACE REFLECTED AND EMITTED RADIATION FLUXES  
*Period Obligations*  
 04/15/1987-04/30/1994 FY93: \$11,453 TOTAL: \$619,132  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 B L BLAD GSFC/D L TOLL 39-Env Sci, NEC  
 E A WALTER-SHEA ....F HALL

**NAG 5-1612 University of Nebraska - Lincoln 5483**  
 STUDY AND SIMULATION OF LOW RATE VIDEO CODING SCHEMES  
*Period Obligations*  
 05/24/1991-06/14/1994 FY93: \$39,999 TOTAL: \$132,941  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 K SAYOOD GSFC/P SHU YEH 45-Elec Engr  
 ....W H MILLER

**NAG 5-1762 University of Nebraska - Lincoln 5484**  
 MEASUREMENT OF SURFACE BIOPHYSICAL PROPERTIES AND RADIATION BALANCE FOR KUREX-91  
*Period Obligations*  
 09/10/1991-09/14/1993 FY93: \$26,675 TOTAL: \$66,750  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 B L BLAD GSFC/D W DEERING 39-Env Sci, NEC  
 E A WALTER-SHEA

**NAG 5-2331 University of Nebraska - Lincoln 5485**  
 SURFACE ENERGY AND WATER BALANCES OF FOREST AND WETLAND SUBSYSTEMS IN THE BOREAL FOREST: SURFACE..  
*Period Obligations*  
 07/27/1993-07/31/1994 FY93: \$45,000 TOTAL: \$45,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D E JELINSKI GSFC/F G HALL 39-Env Sci, NEC  
 ....P SELLERS

**NAG 9-633 University of Nebraska - Lincoln 5486**  
 EVALUATION OF EXTRAVEHICULAR ACTIVITY AND LAUNCH AND ENTRY SUIT  
*Period Obligations*  
 08/24/1992-08/31/1993 FY93: \$0 TOTAL: \$14,865  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R R BISHU JSC/S H GOLDSTEIN 19-Phys Sci, NEC

**NAGW 1266 University of Nebraska - Lincoln 5487**  
 SYNEPTIC ANALYSIS OF ICE MELT FROM NIMBUS-7 SMMR  
*Period Obligations*  
 03/15/1988-12/31/1993 FY93: \$148,372 TOTAL: \$413,104  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M R ANDERSON HQ/R H THOMAS 33-Oceanography  
 ....W S WILSON

**NAGW 1275 University of Nebraska - Lincoln 5488**  
 PULSED ACCELERATION  
*Period Obligations*  
 04/06/1988-11/30/1993 FY93: \$72,800 TOTAL: \$260,174  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 T A JONES HQ/T W HALSTEAD 51-Biological Sci

**NAGW 1751 University of Nebraska - Lincoln 5489**  
 INTERACTION OF RADIATION WITH PLANETARY GASES  
*Period Obligations*  
 04/17/1989-11/30/1993 FY93: \$53,500 TOTAL: \$214,631  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J A SAMSON HQ/J T BERGSTRALH 11-Astronomy

**NAGW 2395 University of Nebraska - Lincoln 5490**  
 NAGW-2395/UNIV NEBRASKA/A TEST OF NEW RADIATIVE OPACITIES AND THEIR INCORPORATION INTO IMPROVED  
*Period Obligations*  
 02/21/1991-01/31/1994 FY93: \$109,455 TOTAL: \$376,676  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 N R SIMON HQ/G S KUTTER 11-Astronomy  
 ....G R RIEGLER

**NAGW 3106 University of Nebraska - Lincoln 5491**  
 REMOTE MEASUREMENT OF ICE SHEET PARAMETERS AT DEPTH  
*Period Obligations*  
 06/22/1992-03/31/1994 FY93: \$106,909 TOTAL: \$206,909  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 B L HANSEN HQ/R H THOMAS 39-Env Sci, NEC  
 J R KELTY ....J S THEON  
 K C KUIVINEN

# **NASA'S UNIVERSITY PROGRAM** **NEBRASKA (Continued)**

**NAGW 3262 University of Nebraska - Lincoln 5492**  
NAGW-3262/UNIV NEBRASKA-LINCOLN/EVAL OF ADVANCED S  
ENSOR TECHNOLOGY

Period	Obligations	
10/29/1992-08/31/1993	FY93: \$56,230	TOTAL: \$56,230
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
D RUNDQUIST	HQ/M R HELFERT	39-Env Sci, NEC
J MERCHANT	....D M BUTLER	
C KEITHLEY		

**NCA 2-593 University of Nebraska - Lincoln 5493**  
HEAT TRANSFER IN LAMINATED COMPOSITE SHELLS FOR AN  
ALYSIS OF AIRFRAMES IN HYPERSONIC FLIGHT

Period	Obligations	
02/27/1991-02/28/1992	FY93: \$0	TOTAL: \$39,992
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
C W MARTIN	ARC/K K GUPTA	41-Aero Engr

**NCA 2-665 University of Nebraska - Lincoln 5494**  
VIBRATION AND BUCKLING OF LAMINATED COMPOSITE SHELLS  
WITH THERMAL LOADING.

Period	Obligations	
10/21/1991-10/31/1992	FY93: \$0	TOTAL: \$37,040
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
C W MARTIN	ARC/K K GUPTA	47-Materials Engr

**NCA 2-699 University of Nebraska - Lincoln 5495**  
ANALYSIS OF COMPOSITE AIRFRAMES WITH VARIABLE THIC  
KNES

Period	Obligations	
04/08/1992-04/30/1993	FY93: \$0	TOTAL: \$39,994
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
D W MARTIN	ARC/K K GUPTA	41-Aero Engr

**NCA 2-762 University of Nebraska - Lincoln 5496**  
NONLINEAR FIELD PROBLEMS WITH APPLICATIONS TO AIRCRAFT  
STRUCTURES AND RELATED FIELDS

Period	Obligations	
11/17/1992-11/30/1993	FY93: \$39,189	TOTAL: \$39,189
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
C W MARTIN	ARC/K K GUPTA	41-Aero Engr

**NGT 00-030-127 University of Nebraska - Lincoln 5497**  
NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM

Period	Obligations	
10/30/1992-08/31/1994	FY93: \$44,000	TOTAL: \$44,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
T L MOTE	HQ/G ASRAR	99-Multi-Discip
	....D M BUTLER	

**NGT 00-070-280 University of Nebraska - Lincoln 5498**  
NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
MINORITY FOCUS PROGRAM

Period	Obligations	
07/24/1992-06/30/1994	FY93: \$22,000	TOTAL: \$44,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
K SAVOOD	LERC/F MONTEGANI	45-Elec Engr

**NAG 8-221 University of Nebraska-Omaha 5499**  
JOVE

Period	Obligations	
01/30/1992-05/30/1994	FY93: \$28,000	TOTAL: \$59,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
J RASLER	MSFC/F SIX	51-Biological Sci
D WILKINS		

**NCA 2-701 University of Nebraska-Omaha 5500**  
COOPERATIVE FLIGHT PLANNING: PILOTS, DISPATCHERS, AND  
COMPUTER BASED SYSTEMS

Period	Obligations	
03/27/1992-02/28/1993	FY93: \$0	TOTAL: \$24,284
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
C E MCCOY	ARC/K CORKER	69-Psych, NEC
	....J ORASANU	

**NGT 00-040-051 University of Nebraska-Omaha 5501**  
NATIONAL SPACE GRANT COLLEGE AND FELLOWSHIP PROGRA M

Period	Obligations	
07/26/1991-01/31/1994	FY93: \$188,700	TOTAL: \$378,700
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
B B BOWEN	HQ/L KEFFER	99-Multi-Discip

## **NEVADA**

**NAG 1-1546 Univ. of Nevada - Desert Res. Inst. 5502**  
AUTOMATION OF REPLICATOR DATA ANALYSIS

Period	Obligations	
09/27/1993-09/26/1994	FY93: \$82,037	TOTAL: \$82,037
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
J HALLETT	LARC/D S MCDUGAL	31-Atmos Sci
W P ARNOTT	....T L OWENS	

**NAG 2-663 Univ. of Nevada - Desert Res. Inst. 5503**  
ER2 PARTICLE REPLICATOR

Period	Obligations	
08/01/1990-09/30/1993	FY93: \$95,000	TOTAL: \$229,277
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
J HALLETT	ARC/R F PUESCHEL	31-Atmos Sci

**NAGW 2562 Univ. of Nevada - Desert Res. Inst. 5504**  
DEVELOPMENT OF AN EOS ORIENTED INFORMATION SYSTEM FOR  
GEOSCIENCE INVESTIGATIONS IN ARID LANDS

Period	Obligations	
07/26/1991-12/31/1993	FY93: \$100,000	TOTAL: \$249,347
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
J V TARANIK	HQ/A J TUYAHOV	32-Geological Sci
D A MOUNT	....J C DODGE	

**NAGW 3753 Univ. of Nevada - Desert Res. Inst. 5505**  
SOUTHERN HEMISPHERE CLOUD CONDENSATION NUCLEI

Period	Obligations	
09/16/1993-07/31/1994	FY93: \$56,079	TOTAL: \$56,079
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
J G HUDSON	HQ/J T SUTTLES	31-Atmos Sci
C TWOHY	....A C JANETOS	

**NASA'S UNIVERSITY PROGRAM**  
**NEVADA (Continued)**

**NAS 5-31231 University of Nevada - Las Vegas 5506**  
 STIS CO-INVESTIGATOR SUPPORT  
*Period Obligations*  
 08/30/1991-03/31/1998 FY93: \$10,000 TOTAL: \$17,301  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D WEISTROP GSFC/D VITAGLIANO 11-Astronomy

**NGT 00-040-042 University of Nevada - Las Vegas 5507**  
 NGT-40042/UNIV NEVADA SYSTEM/NATIONAL SPACE GRANT COLLEGE AND FELLOWSHIP PROGRAM  
*Period Obligations*  
 05/29/1991-02/28/1994 FY93: \$173,000 TOTAL: \$493,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J V TARANIK HQ/E T SCHWARTZ 99-Multi-Discip

**NAG 1-1113 University of Nevada - Reno 5508**  
 CLOUD CONDENSATION NUCLEI MEASUREMENTS IN PROJECT FIRE  
*Period Obligations*  
 03/15/1990-12/12/1993 FY93: \$43,000 TOTAL: \$243,969  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J G HUDSON LARC/D S MCDUGAL 31-Atmos Sci  
 ....T L OWENS

**NAG 1-1308 University of Nevada - Reno 5509**  
 INFRARED EMISSION STUDIES OF THE QUENCHING KINETICS OF I\*(2P1/2) BY PERFLUOROALKYL IODIDES  
*Period Obligations*  
 07/01/1991-12/31/1992 FY93: \$1 TOTAL: \$19,628  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J I CLINE LARC/G A MINER 12-Chemistry  
 ....J H LEE

**NAG 5-2136 University of Nevada - Reno 5510**  
 H95C: A MERGER CANDIDATE  
*Period Obligations*  
 11/09/1992-11/14/1993 FY93: \$6,000 TOTAL: \$6,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M RODRIGUE GSFC/D WEST 11-Astronomy

**NAGW 1947 University of Nevada - Reno 5511**  
 EXOBIOLOGY SITE SELECTION FOR FUTURE MARS MISSIONS : MARTIAN PALEOLAKE SEDIMENTS AND TERRESTRIAL ANAL.  
*Period Obligations*  
 04/27/1990-11/14/1993 FY93: \$106,104 TOTAL: \$401,986  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R A WHARTON HQ/J D RUMMEL 54-Env Biology

**NAGW 2347 University of Nevada - Reno 5512**  
 GEOLOGIC MAPPING OF THE OPHIR PLANUM REGION OF MARS  
*Period Obligations*  
 05/21/1991-12/31/1992 FY93: \$0 TOTAL: \$13,402  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R A SCHULTZ HQ/T A MAXWELL 32-Geological Sci

**NAGW 2572 University of Nevada - Reno 5513**  
 EXPERIMENTAL STUDY OF GROWTH AND PHASE CHANGE OF POLAR STRATOSPHERIC CLOUD PARTICLES  
*Period Obligations*  
 09/19/1991-06/30/1993 FY93: \$0 TOTAL: \$59,268  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J HALLETT HQ/M J KURYLO 31-Atmos Sci  
 ....R T WATSON

**NCA 2-799 University of Nevada - Reno 5514**  
 PALEOLAKES ON MARS AND TERRESTRIAL ANALOGS: COMPARATIVE STUDY OF ANTARCTIC LAKES  
*Period Obligations*  
 03/15/1993-03/14/1994 FY93: \$21,868 TOTAL: \$21,868  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R A WHARTON ARC/C R STOKER 32-Geological Sci  
 S TYLER ....C P MCKAY

**NCC 2-507 University of Nevada - Reno 5515**  
 NUMERICAL INVESTIGATIONS IN THREE-DIMENSIONAL INTERFLOWS  
*Period Obligations*  
 10/01/1987-12/31/1993 FY93: \$53,177 TOTAL: \$268,889  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 W C ROSE ARC/D P BENCZE 41-Aero Engr

**NGT 00-050-575 University of Nevada - Reno 5516**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 07/26/1990-06/30/1992 FY93: \$0 TOTAL: \$41,980  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J V TARANIK HQ/F C OWENS 32-Geological Sci

**NEW HAMPSHIRE**

**NAG 2-628 Dartmouth College 5517**  
 UNIX PASSWORD SECURITY  
*Period Obligations*  
 03/15/1990-09/30/1991 FY93: \$0 TOTAL: \$122,814  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M A BISHOP ARC/R E VANCELEEF 22-Computer Science  
 ....W KRAMER

**NAG 5-663 Dartmouth College 5518**  
 SUBORBITAL PROGRAM IN MAGNETOSPHERIC AND IONOSPHERIC PHYSICS  
*Period Obligations*  
 03/28/1990-03/31/1994 FY93: \$83,527 TOTAL: \$333,527  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J W LABELLE GSFC/L J EARLY 13-Physics  
 ....R H PLESS

**NAG 5-1098 Dartmouth College 5519**  
 THEORETICAL STUDY GLOBAL GEOSPACE SYSTEM  
*Period Obligations*  
 11/01/1988-01/31/1994 FY93: \$199,990 TOTAL: \$914,427  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M K HUDSON GSFC/S A CURTIS 13-Physics  
 ....M H ACUNA



**NASA'S UNIVERSITY PROGRAM  
NEW HAMPSHIRE (Continued)**

**NAG 5-1410 Dartmouth College 5520**  
 IUE SPECTRA OF A COMPLETE SAMPLE OF CATAclysmic  
*Period Obligations*  
 08/14/1990-08/31/1992 FY93: \$0 TOTAL: \$8,588  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J R THORSTENSEN GSFC/D WEST 11-Astronomy

**NAGW 1652 Dartmouth College 5528**  
 TIME DEPENDENT NATURE OF AURORAL PHENOMENA  
*Period Obligations*  
 02/24/1989-06/30/1993 FY93: \$0 TOTAL: \$325,420  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M K HUDSON HQ/M M MELLOTT 13-Physics  
 ....T W PERRY

**NAG 5-1508 Dartmouth College 5521**  
 SMALL SCALE STRUCTURE OF THE MAGNETO PAUSE FROM  
 AMPTE/IRM DATA  
*Period Obligations*  
 03/27/1991-04/14/1994 FY93: \$63,784 TOTAL: \$184,304  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 B SONNERUP GSFC/G D BULLOCK 19-Phys Sci, NEC

**NAGW 1824 Dartmouth College 5529**  
 MAGNETOSPHERIC SHEAR LAYERS COUPLED TO THE  
 IONOSPHERE  
*Period Obligations*  
 09/06/1989-08/31/1993 FY93: \$0 TOTAL: \$251,092  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 W LOTKO HQ/M M MELLOTT 13-Physics  
 ....T W PERRY

**NAG 5-2138 Dartmouth College 5522**  
 AN X-RAY STUDY OF AN OPTICAL JET FEATURE IN CTB 10 9  
*Period Obligations*  
 11/09/1992-11/14/1993 FY93: \$9,725 TOTAL: \$9,725  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R A FESEN GSFC/R PETRE 11-Astronomy

**NAGW 1838 Dartmouth College 5530**  
 MICROWAVE RADAR OBSERVATIONS OF ANTARTIC SEA ICE  
*Period Obligations*  
 11/29/1989-09/30/1993 FY93: \$0 TOTAL: \$444,872  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 K C JEZEK HQ/R H THOMAS 39-Env Sci, NEC  
 R K MOORE ....W S WILSON

**NAG 5-2164 Dartmouth College 5523**  
 ACCRETION POWER IN AM CVN  
*Period Obligations*  
 12/31/1992-12/31/1993 FY93: \$16,827 TOTAL: \$16,827  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J R THORSTENSEN GSFC/R PETRE 11-Astronomy

**NAGW 2563 Dartmouth College 5531**  
 NAGW=2563/NO FLUXES INTO THE MIDDLE ATMOSPHERE  
*Period Obligations*  
 02/26/1991-01/31/1993 FY93: \$0 TOTAL: \$70,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 C G FESEN HQ/J A KAYE 31-Atmos Sci  
 ....R E MURPHY

**NAG 5-2252 Dartmouth College 5524**  
 MESOSCALE PROCESSES AT MAGNETOSPHERIC BOUNDARIES A  
 ND THEIR COUPLING TO THE IONOSPHERE  
*Period Obligations*  
 05/12/1993-01/31/1994 FY93: \$135,000 TOTAL: \$135,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 W LOTKO GSFC/T J BIRMINGHAM 13-Physics  
 ....J D BOHLIN

**NAGW 2656 Dartmouth College 5532**  
 TIDAL COUPLING IN THE IONOSPHERE  
*Period Obligations*  
 07/15/1991-04/30/1994 FY93: \$55,700 TOTAL: \$161,646  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 C G FESEN HQ/M M MELLOTT 49-Engr, NEC  
 ....J D BOHLIN

**NAG 5-2314 Dartmouth College 5525**  
 VOYAGER 2 OBSERVATIONS OF THE GALACTIC SUPERNOVA R  
 EMNANT G65.3+5.7  
*Period Obligations*  
 07/12/1993-07/14/1994 FY93: \$10,000 TOTAL: \$10,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R A FESEN GSFC/R OLIVERSEN 11-Astronomy

**NAGW 3045 Dartmouth College 5533**  
 NAGW-3045/DARTMOUTH COLLEGE/THERMOSPHERIC NITRIC O  
 XIDE: OBSERVATIONS AND MODELING  
*Period Obligations*  
 04/17/1992-03/31/1994 FY93: \$52,649 TOTAL: \$102,649  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 C FESEN HQ/D L REASONER 13-Physics  
 ....J D BOHLIN

**NAG 5-2337 Dartmouth College 5526**  
 THE FREQUENCY AND DISTRIBUTION OF HIGH VELOCITY GA S IN  
 THE GALAXY  
*Period Obligations*  
 07/28/1993-07/31/1994 FY93: \$12,000 TOTAL: \$12,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R A FESEN GSFC/D WEST 11-Astronomy

**NAGW 3227 Dartmouth College 5534**  
 SOIL CARBON INVENTORY AND CARBON FLUX RESPONSES TO  
 LANDUSE CHANGE, NORTHERN NEW ENGLAND  
*Period Obligations*  
 10/26/1992-10/31/1993 FY93: \$155,000 TOTAL: \$155,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R BRAKENRIDGE HQ/M BALTUCK 32-Geological Sci

**NAGW 710 Dartmouth College 5527**  
 RESEARCH ON TURBULENCE IN PLASMAS  
*Period Obligations*  
 01/01/1985-12/31/1993 FY93: \$47,000 TOTAL: \$734,075  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D C MONTGOMERY HQ/M M MELLOTT 13-Physics  
 ....W V JONES

**NAGW 3506 Dartmouth College 5535**  
 REGIONAL GEOLOGY AND TECTONICS OF THE V26 AND V38  
 QUADRANGLES, VENUS  
*Period Obligations*  
 04/09/1993-03/31/1994 FY93: \$30,000 TOTAL: \$30,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 G R BRAKENRIDGE HQ/J T BERGSTRAHL 32-Geological Sci

**NASA'S UNIVERSITY PROGRAM  
NEW HAMPSHIRE (Continued)**

**NGT 00-050-376 Dartmouth College 5536**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
08/22/1988-05/31/1992 FY93: \$1 TOTAL: \$64,415  
*Prin. Invest. NASA Tech. Officer CASE Category*  
F KENNEDY HQ/F C OWENS 46-Mech Engr

**NGT 00-050-466 Dartmouth College 5537**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
08/09/1989-06/30/1992 FY93: \$0 TOTAL: \$62,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
B O SONNERUP HQ/F C OWENS 49-Engr, NEC

**NGT 00-050-625 Dartmouth College 5538**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
07/24/1990-06/30/1993 FY93: \$0 TOTAL: \$49,297  
*Prin. Invest. NASA Tech. Officer CASE Category*  
K C JEZEK HQ/F C OWENS 45-Elec Engr

**NGT 00-050-798 Dartmouth College 5539**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
07/01/1991-06/30/1994 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
B SONNERUP HQ/F C OWENS 45-Elec Engr

**NGT 00-050-810 Dartmouth College 5540**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
06/25/1991-06/30/1994 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
G WEGNER HQ/F C OWENS 11-Astronomy

**NGT 00-050-936 Dartmouth College 5541**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
06/15/1992-06/30/1994 FY93: \$22,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J LABELLE HQ/J K ALEXANDER 13-Physics

**NGT 00-051-160 Dartmouth College 5542**  
GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
06/22/1992-06/30/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D KOTZ HQ/P HUNTER 29-Math/Computer, NEC

**NGT 00-051-176 Dartmouth College 5543**  
GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
08/18/1993-09/20/1993 FY93: \$0 TOTAL: \$0  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D KOTZ ARC/M MOORE 22-Computer Science

**NAG 1-1233 University of New Hampshire - Durham 5544**  
MEASUREMENTS OF NITRIC ACID, CARBOXYLIC ACIDS, AND  
SELECTED AEROSOL SPECIES FOR THE NASA/GTE PACIFIC  
*Period Obligations*  
04/09/1991-05/31/1994 FY93: \$290,000 TOTAL: \$598,092  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R W TALBOT LARC/J M HOELL 43-Chem Engr  
J E DIBB ....B ANDERSON  
O KLEMM

**NAG 3-1181 University of New Hampshire - Durham 5545**  
HOLLOW CATHODE PARTICLE DIAGNOSTICS  
*Period Obligations*  
06/12/1990-11/22/1993 FY93: \$90,000 TOTAL: \$354,693  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R B TORBERT LERC/J T GALOFARO 13-Physics  
C A KLETZING

**NAG 5-656 University of New Hampshire - Durham 5546**  
RAPIDLY VARYING SPACE PLASMA PHENOMENA  
*Period Obligations*  
06/01/1989-05/31/1994 FY93: \$14,345 TOTAL: \$667,640  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R B TORBERT GSFC/L J EARLY 13-Physics  
....R H PLESS

**NAG 5-678 University of New Hampshire - Durham 5547**  
WISP II: A PROPOSAL TO REFLY WISP  
*Period Obligations*  
04/10/1991-04/30/1994 FY93: \$85,000 TOTAL: \$239,026  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R L ARNOLDY GSFC/L J EARLY 13-Physics  
....R H PLESS

**NAG 5-692 University of New Hampshire - Durham 5548**  
SOUNDING OF THE CLEFT ION FOUNDATION ENERGIZATION  
REGION  
*Period Obligations*  
05/26/1992-05/31/1994 FY93: \$39,445 TOTAL: \$59,445  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R ARNOLDY WFF/L J EARLY 13-Physics  
....R H PLESS

**NAG 5-720 University of New Hampshire - Durham 5549**  
RESEARCH RELATIVE TO THE SMM GAMMA-RAY EXPERIMENT  
*Period Obligations*  
11/15/1985-01/31/1992 FY93: \$0 TOTAL: \$3,398,839  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D J FORREST GSFC/F GORDON 19-Phys Sci, NEC

**NAG 5-1426 University of New Hampshire - Durham 5550**  
ANALYSIS OF DPU ARCHITECTURE AND SOFTWARE  
*Period Obligations*  
09/10/1990-03/14/1993 FY93: \$0 TOTAL: \$405,722  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R B TORBERT GSFC/J D SCUDDER 19-Phys Sci, NEC  
....K W OGILVIE

**NAG 5-1479 University of New Hampshire - Durham 5551**  
THEORETICAL STUDIES ON THE CHROMOSPHERE, CORONA, AND  
SOLAR WIND  
*Period Obligations*  
11/26/1990-05/14/1994 FY93: \$316,050 TOTAL: \$880,070  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J V HOLLWEG GSFC/T J BIRMINGHAM 13-Physics  
M A LEO

**NASA'S UNIVERSITY PROGRAM  
NEW HAMPSHIRE (Continued)**

**NAG 5-1548 University of New Hampshire - Durham 5552**  
PARTICLE ACCELERATION AND TRANSPORT IN THE TAIL AND AT THE FRONT SIDE OF THE MAGNETOSPHERE

Period	Obligations	
04/17/1991-04/30/1994	FY93: \$118,900	TOTAL: \$334,845
Prin. Invest.	NASA Tech. Officer	CASE Category
E MOBIUS	GSFC/G D BULLOCK	19-Phys Sci, NEC

**NAG 5-2350 University of New Hampshire - Durham 5559**  
DETERMINING THE CHARACTERISTICS OF SOLAR MICROFLARES WITH BATSE

Period	Obligations	
08/12/1993-08/31/1994	FY93: \$14,065	TOTAL: \$14,065
Prin. Invest.	NASA Tech. Officer	CASE Category
J M RYAN	GSFC/J NORRIS	11-Astronomy
	....N WHITE	

**NAG 5-1561 University of New Hampshire - Durham 5553**  
PROBING SOLAR PARTICLE ACCELERATION DURING THE 22ND SOLAR MAXIMUM WITH GRO/OSSE

Period	Obligations	
04/17/1991-11/14/1993	FY93: \$107,939	TOTAL: \$183,015
Prin. Invest.	NASA Tech. Officer	CASE Category
W T VESTRAND	GSFC/J P NORRIS	11-Astronomy
	....D A KNIFFEN	

**NAG 5-5007 University of New Hampshire - Durham 5560**  
AURORAL MICROPHYSICS AND ION CONICS: INVESTIGATION(AMICIST)

Period	Obligations	
05/12/1993-12/31/1993	FY93: \$59,495	TOTAL: \$59,495
Prin. Invest.	NASA Tech. Officer	CASE Category
R ARNOLDY	GSFC/L J EARLY	13-Physics
	....R H PLESS	

**NAG 5-1562 University of New Hampshire - Durham 5554**  
A STATISTICAL APPROACH TO SOLAR FLARE SPECTRAL ANALYSIS WITH BATSE

Period	Obligations	
04/17/1991-11/14/1993	FY93: \$85,705	TOTAL: \$160,750
Prin. Invest.	NASA Tech. Officer	CASE Category
D J FORREST	GSFC/J P NORRIS	11-Astronomy
	....D A KNIFFEN	

**NAG 5-5010 University of New Hampshire - Durham 5561**  
PARTICLE MEASUREMENTS ABOVE AN ACTIVE THUNDERSTORM

Period	Obligations	
05/15/1993-12/31/1993	FY93: \$29,825	TOTAL: \$29,825
Prin. Invest.	NASA Tech. Officer	CASE Category
C KLETZING	GSFC/L J EARLY	13-Physics
	....R H PLESS	

**NAG 5-1753 University of New Hampshire - Durham 5555**  
INVESTIGATING THE SOURCE OF HARD X-RAY EMISSION OBSERVED FOR HRS AFTER END OF A GAMMA-RAY BURST:

Period	Obligations	
08/20/1991-08/31/1992	FY93: \$11	TOTAL: \$19,989
Prin. Invest.	NASA Tech. Officer	CASE Category
A CONNORS	GSFC/R PETRE	11-Astronomy

**NAG 6-12 University of New Hampshire - Durham 5562**  
GRANT AWARD

Period	Obligations	
04/23/1981-03/31/1994	FY93: \$0	TOTAL: \$2,012,389
Prin. Invest.	NASA Tech. Officer	CASE Category
R L ARNOLDY	GSFC/L J EARLY	19-Phys Sci, NEC
R L KAUFMANN	....R H PLESS	

**NAG 5-2172 University of New Hampshire - Durham 5556**  
SUPPORT OF A WORKSHOP ON A NEW ERA OF HIGH ENERGY SOLAR FLARE MEASUREMENTS

Period	Obligations	
01/14/1993-09/30/1993	FY93: \$20,000	TOTAL: \$20,000
Prin. Invest.	NASA Tech. Officer	CASE Category
J M RYAN	GSFC/J P NORRIS	11-Astronomy
W T VESTRAND	....N WHITE	

**NAG 8-853 University of New Hampshire - Durham 5563**  
GEOSIS/WETNET

Period	Obligations	
10/04/1990-10/14/1993	FY93: \$0	TOTAL: \$100,152
Prin. Invest.	NASA Tech. Officer	CASE Category
B ROCK	MSFC/J LUVALL	31-Atmos Sci

**NAG 5-2289 University of New Hampshire - Durham 5557**  
MAGNITUDE AND CONTROL OF TRACT GAS EXCHANGE IN BOREAL ECOSYSTEMS

Period	Obligations	
06/14/1993-06/14/1994	FY93: \$74,558	TOTAL: \$74,558
Prin. Invest.	NASA Tech. Officer	CASE Category
P M CRILL	GSFC/F G HALL	39-Env Sci, NEC
	....P SELLERS	

**NAGW 512 University of New Hampshire - Durham 5564**  
TERMINAL DECOMPOSITION AND GASEOUS SULFUR RELEASE FROM WETLANDS

Period	Obligations	
10/15/1983-05/31/1992	FY93: \$0	TOTAL: \$730,308
Prin. Invest.	NASA Tech. Officer	CASE Category
M E HINES	HQ/M M AVERNER	31-Atmos Sci
W B LYONS	....D L DEVINCENZI	
H E GAUDETTE		

**NAG 5-2290 University of New Hampshire - Durham 5558**  
MODELING CLIMATE-BIOSPHERE INTERACTIONS IN THE BOREAL FOREST

Period	Obligations	
06/14/1993-06/14/1994	FY93: \$34,000	TOTAL: \$34,000
Prin. Invest.	NASA Tech. Officer	CASE Category
R C HARRISS	GSFC/F G HALL	39-Env Sci, NEC
	....P SELLERS	

**NAGW 714 University of New Hampshire - Durham 5565**  
PLANETARY BIOCHEMICAL CYCLES/THEIR PERTURBATION BY HUMANS

Period	Obligations	
01/01/1985-09/30/1992	FY93: \$0	TOTAL: \$1,419,480
Prin. Invest.	NASA Tech. Officer	CASE Category
B MOORE	HQ/M M AVERNER	51-Biological Sci
J M MELILLO	....D WICKLAND	

# NASA'S UNIVERSITY PROGRAM

## NEW HAMPSHIRE (Continued)

### NAGW 980 University of New Hampshire - Durham 5566

GLOBAL FRONTS OF DEFORESTATION

Period	Obligations	
10/01/1986-02/28/1993	FY93: \$0	TOTAL: \$995,875
Prin. Invest.	NASA Tech. Officer	CASE Category
B E MOORE	HQ/J LAWLESS	39-Env Sci, NEC
D L SKOLE	....A J TUYAHOV	

### NAGW 1245 University of New Hampshire - Durham 5567

SPECTROCHARACTERIZATION OF FOREST DECLINE DAMAGE

Period	Obligations	
04/13/1988-12/31/1993	FY93: \$0	TOTAL: \$717,646
Prin. Invest.	NASA Tech. Officer	CASE Category
B N ROCK	HQ/D E WICKLAND	39-Env Sci, NEC
	....M J RUZEK	

### NAGW 1530 University of New Hampshire - Durham 5568

THE SYSTEMATIC INTERPRETATION OF COSMIC RAY DATA

Period	Obligations	
12/28/1988-10/31/1991	FY93: \$159	TOTAL: \$128,211
Prin. Invest.	NASA Tech. Officer	CASE Category
W R WEBBER	HQ/M M MELLOTT	13-Physics
	....W V JONES	

### NAGW 1625 University of New Hampshire - Durham 5569

ION BEAM GENERATION AND INTERACTIONS WITH THE IONOSPHERE

Period	Obligations	
02/08/1989-01/31/1994	FY93: \$0	TOTAL: \$206,598
Prin. Invest.	NASA Tech. Officer	CASE Category
R L KAUFMAN	HQ/M M MELLOTT	13-Physics
	....T W PERRY	

### NAGW 1726 University of New Hampshire - Durham 5570

SOURCES OF ATMOSPHERIC METHANE IN THE TROPICS

Period	Obligations	
04/11/1989-06/30/1995	FY93: \$50,000	TOTAL: \$363,515
Prin. Invest.	NASA Tech. Officer	CASE Category
R HARRISS	HQ/M M AVERNER	54-Env Biology

### NAGW 1825 University of New Hampshire - Durham 5571

NITROGEN SATURATION IN FOREST ECOSYSTEMS A REGIONAL ASSESSMENT OF EFFECTS ON NITROUS OXIDE AND METH

Period	Obligations	
01/12/1990-12/31/1992	FY93: \$0	TOTAL: \$626,348
Prin. Invest.	NASA Tech. Officer	CASE Category
J D ABER	HQ/D E WICKLAND	39-Env Sci, NEC
	....R E MURPHY	

### NAGW 1826 University of New Hampshire - Durham 5572

ATMOSPHERIC METHANE SOURCES IN NORTHERN ENVIRONMENTS

Period	Obligations	
09/06/1989-12/31/1992	FY93: \$0	TOTAL: \$544,000
Prin. Invest.	NASA Tech. Officer	CASE Category
R C HARRISS	HQ/M J KURYLO	31-Atmos Sci
	....R T WATSON	

### NAGW 1888 University of New Hampshire - Durham 5573

NAGW-1888/UNIV NEW HAMPSHIRE/LINKING SATELLITE DATA TO MODELS OF HYDROLOGY, TERRESTRIAL ECOSYSTEM

Period	Obligations	
12/12/1989-03/31/1993	FY93: \$0	TOTAL: \$534,772
Prin. Invest.	NASA Tech. Officer	CASE Category
B MOORE	HQ/D E WICKLAND	39-Env Sci, NEC
B CHOUDHURY	....R E MURPHY	

### NAGW 2043 University of New Hampshire - Durham 5574

NAGW-2043/UNIV. OF NEW HAMPSHIRE/SECOND YEAR EFFORT IN AN INVESTIGATION OF A NEW SPACE PLASMA I

Period	Obligations	
04/02/1990-12/31/1992	FY93: \$0	TOTAL: \$305,700
Prin. Invest.	NASA Tech. Officer	CASE Category
R B TORBERT	HQ/J K ALEXANDER	13-Physics
	....D A HOLLAND	

### NAGW 2294 University of New Hampshire - Durham 5575

NAGW-2294/UNV NEW HAMPSHIRE/ESTIMATING RATES OF DEFORESTATION IN THE AMAZON BASIN USING REMOTE SENS

Period	Obligations	
10/30/1990-07/31/1993	FY93: \$37,000	TOTAL: \$688,369
Prin. Invest.	NASA Tech. Officer	CASE Category
B MOORE	HQ/S TILLFORD	39-Env Sci, NEC
D SKOLE	....G LESANE	

### NAGW 2505 University of New Hampshire - Durham 5576

KINETIC PHYSICS OF THE PLASMA SHEET BOUNDARY LAYER

Period	Obligations	
07/25/1991-05/31/1994	FY93: \$40,000	TOTAL: \$145,000
Prin. Invest.	NASA Tech. Officer	CASE Category
T G ONSAGER	HQ/M M MELLOTT	13-Physics
	....J D BOHLIN	

### NAGW 2579 University of New Hampshire - Durham 5577

STUDIES OF INTERSTELLAR PICKUP IONS IN THE SOLAR WIND

Period	Obligations	
06/26/1991-10/31/1993	FY93: \$60,000	TOTAL: \$205,985
Prin. Invest.	NASA Tech. Officer	CASE Category
P A ISENBERG	HQ/W V JONES	13-Physics

### NAGW 2669 University of New Hampshire - Durham 5578

CHANGES IN BIOGEOCHEMICAL CYCLES: EXECUTION PHASES

Period	Obligations	
09/03/1991-12/31/1993	FY93: \$1,765,000	TOTAL: \$3,832,989
Prin. Invest.	NASA Tech. Officer	CASE Category
B MOORE	HQ/R E MURPHY	39-Env Sci, NEC
	....W S WILSON	

### NAGW 2697 University of New Hampshire - Durham 5579

ELECTRON BEAM EXPERIMENT COLLABORATION

Period	Obligations	
09/03/1991-08/31/1993	FY93: \$53,845	TOTAL: \$135,385
Prin. Invest.	NASA Tech. Officer	CASE Category
C KLETZING	HQ/E C WHIPPLE	13-Physics
R B TORBERT	....J D BOHLIN	

### NAGW 2726 University of New Hampshire - Durham 5580

FIRE SCARS IN NORTHEASTERN BRAZIL REMOTE SENSING AND TRACE GAS EXCHANGES

Period	Obligations	
09/09/1991-08/31/1993	FY93: \$0	TOTAL: \$135,000
Prin. Invest.	NASA Tech. Officer	CASE Category
R C HARRISS	HQ/A C JANETOS	39-Env Sci, NEC
	....R T WATSON	

### NAGW 2734 University of New Hampshire - Durham 5581

COSMIC AND SOLAR GAMMA-RAY AND NEUTRON EXPERIMENTS

Period	Obligations	
09/18/1991-10/31/1992	FY93: \$0	TOTAL: \$28,069
Prin. Invest.	NASA Tech. Officer	CASE Category
P P DUNPHY	HQ/W WAGNER	13-Physics
	....K LANG	

**NASA'S UNIVERSITY PROGRAM  
NEW HAMPSHIRE (Continued)**

**NAGW 2741 University of New Hampshire - Durham 5582**  
SPECTRAL CHARACTERIZATION OF OZONE DAMAGE IN RED S  
PRUCE AND WHITE PINE

Period	Obligations	
09/19/1991-09/30/1994	FY93: \$98,214	TOTAL: \$260,698
Prin. Invest.	NASA Tech. Officer	CASE Category
B N ROCK	HQ/A C JANETOS	39-Env Sci, NEC
	....D E WICKLAND	

**NAGW 2749 University of New Hampshire - Durham 5583**  
THE ROLE OF TROPICAL DEFORESTATION IN THE GLOBAL CARBON  
CYCLE: SPATIAL AND TEMPORAL DYNAMICS

Period	Obligations	
09/19/1991-08/31/1993	FY93: \$0	TOTAL: \$90,000
Prin. Invest.	NASA Tech. Officer	CASE Category
D L SKOLE	HQ/A C JANETOS	39-Env Sci, NEC
B MOORE	....R T WATSON	

**NAGW 2755 University of New Hampshire - Durham 5584**  
STUDY OF SSM FLARES IN GAMMA RAYS AND NEUTRONS

Period	Obligations	
11/01/1991-10/31/1992	FY93: \$0	TOTAL: \$41,056
Prin. Invest.	NASA Tech. Officer	CASE Category
P P DUNPHY	HQ/W J WAGNER	13-Physics
	....K LANG	

**NAGW 2756 University of New Hampshire - Durham 5585**  
A SEARCH FOR ENERGETIC ION DIRECTIVITY IN LARGE SOLAR  
FLARES

Period	Obligations	
11/01/1991-10/31/1993	FY93: \$0	TOTAL: \$52,030
Prin. Invest.	NASA Tech. Officer	CASE Category
W T VESTRAND	HQ/W J WAGNER	13-Physics
	....K LANG	

**NAGW 2759 University of New Hampshire - Durham 5586**  
STUDY OF THE ELECTRON AND ION ACCELERATION PROCESSES  
BY JOINT INVERSION OF GRS AND HXRBS

Period	Obligations	
09/30/1992-10/31/1993	FY93: \$0	TOTAL: \$41,183
Prin. Invest.	NASA Tech. Officer	CASE Category
D J FORREST	HQ/W J WAGNER	13-Physics
	....K LANG	

**NAGW 2771 University of New Hampshire - Durham 5587**  
GAS EXCHANGE IN WETLANDS; CONTROLS AND REMOTE SENSING

Period	Obligations	
11/25/1991-10/31/1993	FY93: \$0	TOTAL: \$96,666
Prin. Invest.	NASA Tech. Officer	CASE Category
M E HINES	HQ/M M AVERNER	39-Env Sci, NEC

**NAGW 3175 University of New Hampshire - Durham 5588**  
NAGW-3175/UNIV NEW HAMPSHIRE/PARTICLE ACCELERATION  
PHENOMENA IN ASTROPHYSICAL PLASMAS

Period	Obligations	
09/12/1992-06/30/1993	FY93: \$0	TOTAL: \$28,674
Prin. Invest.	NASA Tech. Officer	CASE Category
E L CHUPP	HQ/L S LAPIANA	11-Astronomy

**NAGW 3185 University of New Hampshire - Durham 5589**  
NAGW-3185/UNIV NEW HAMPSHIRE/LANDSAT PATHFINDER ST  
REAM 1: TROPICAL DEFORESTATION MAPPING

Period	Obligations	
08/28/1992-06/30/1994	FY93: \$751,403	TOTAL: \$1,058,343
Prin. Invest.	NASA Tech. Officer	CASE Category
B M MOORE	HQ/M E MAIDEN	31-Atmos Sci
D L SKOLE	....D M BUTLER	

**NAGW 3194 University of New Hampshire - Durham 5590**  
NAGW-3194/UNIV NEW HAMPSHIRE/HIRIS CANOPY CHEMISTRY  
PROOF-OF-CONCEPT

Period	Obligations	
10/07/1992-05/31/1994	FY93: \$297,533	TOTAL: \$297,533
Prin. Invest.	NASA Tech. Officer	CASE Category
J ABER	HQ/A C JANETOS	39-Env Sci, NEC
	....D E WICKLAND	

**NAGW 3454 University of New Hampshire - Durham 5591**  
STUDIES USING IMP, VOYAGER AND PIONEER COSMIC RAY DATA  
TO DETERMINE THE SIZE OF THE HELIOSPHERE

Period	Obligations	
03/19/1993-02/28/1994	FY93: \$33,180	TOTAL: \$33,180
Prin. Invest.	NASA Tech. Officer	CASE Category
J A LOCKWOOD	HQ/W V JONES	13-Physics
	....G L WITHBROE	

**NAGW 3463 University of New Hampshire - Durham 5592**  
CHROMOSPHERIC EVAPORATION IN MAGNETIC RECONNECTION  
MODELS OF SOLAR FLARES

Period	Obligations	
03/23/1993-03/31/1994	FY93: \$29,791	TOTAL: \$29,791
Prin. Invest.	NASA Tech. Officer	CASE Category
T G FORBES	HQ/W J WAGNER	13-Physics
	....J D BOHLIN	

**NAGW 3512 University of New Hampshire - Durham 5593**  
STUDY OF THE TIME EVOLUTION OF SOLAR FLARE ELECTRON  
SPECTRA

Period	Obligations	
04/06/1993-01/31/1994	FY93: \$35,682	TOTAL: \$35,682
Prin. Invest.	NASA Tech. Officer	CASE Category
E L CHUPP	HQ/W J WAGNER	13-Physics
	....J D BOHLIN	

**NAGW 3538 University of New Hampshire - Durham 5594**  
ANALYSIS OF GAMMA RAY DATA FROM SOLAR FLARES IN CYCLES  
21 AND 22

Period	Obligations	
04/22/1993-03/31/1994	FY93: \$85,000	TOTAL: \$85,000
Prin. Invest.	NASA Tech. Officer	CASE Category
W VESTRAND	HQ/W J WAGNER	11-Astronomy
	....J D BOHLIN	

**NAGW 3676 University of New Hampshire - Durham 5595**  
A STUDY OF THE ELECTRON DRIFT INSTRUMENT ON EQUATORIAL  
SOLAR WIND

Period	Obligations	
07/13/1993-04/30/1994	FY93: \$84,000	TOTAL: \$84,000
Prin. Invest.	NASA Tech. Officer	CASE Category
R B TORBERT	HQ/E C WHIPPLE	13-Physics
	....J D BOHLIN	

**NASA'S UNIVERSITY PROGRAM  
NEW HAMPSHIRE (Continued)**

**NAGW 3720 University of New Hampshire - Durham 5596**  
NEW PRODUCTION IN THE NORTH ATLANTIC DERIVED FROM  
SEASONAL PATTERNS IN SEAWIFS DATA

Period	Obligations	
09/14/1993-06/30/1996	FY93: \$110,000	TOTAL: \$110,000
Prin. Invest.	NASA Tech. Officer	CASE Category
J W CAMPBELL	HQ/R E MURPHY	33-Oceanography
	....D M BUTLER	

**NAGW 3723 University of New Hampshire - Durham 5597**  
STUDY OF THE EQUATORIAL MAGNETOSPHERE WITH A TIME-  
OF-FLIGHT MASS SPECTROMETER

Period	Obligations	
09/07/1993-06/30/1994	FY93: \$58,901	TOTAL: \$58,901
Prin. Invest.	NASA Tech. Officer	CASE Category
E MOBIUS	HQ/E C WHIPPLE	13-Physics
	....J D BOHLIN	

**NAS 5-26645 University of New Hampshire - Durham 5598**  
DEFINITION PHASE OF THE DETECTOR SUBSYSTEM FOR THE  
COMPTON

Period	Obligations	
08/19/1981-06/30/1997	FY93: \$2,015,000	TOTAL: \$23,729,300
Prin. Invest.	NASA Tech. Officer	CASE Category
J RYAN	GSFC/J NORRIS	11-Astronomy

**NAS 5-30744 University of New Hampshire - Durham 5599**  
ELECTRON DRIFT EXPERIMENT AND ACTIVE SPACECRAFT  
POTENTIAL

Period	Obligations	
11/22/1989-05/30/1995	FY93: \$2,152,600	TOTAL: \$8,290,500
Prin. Invest.	NASA Tech. Officer	CASE Category
R TORBERT	GSFC/L CHRISTENSEN	13-Physics

**NAS 5-31379 University of New Hampshire - Durham 5600**  
EOS INVESTIGATION: HIGH-RESOLUTION IMAGING  
SPECTROMETER

Period	Obligations	
01/10/1992-06/09/1995	FY93: \$513,000	TOTAL: \$596,640
Prin. Invest.	NASA Tech. Officer	CASE Category
J ABER	GSFC/T BRAKE	39-Env Sci, NEC

**NAS 5-32062 University of New Hampshire - Durham 5601**  
RESEARCH STUDY FOR DEVELOPMENT OF DATABASE OF SMM  
GRS

Period	Obligations	
08/18/1992-08/17/1994	FY93: \$77,700	TOTAL: \$143,800
Prin. Invest.	NASA Tech. Officer	CASE Category
W T VESTRAND	GSFC/R OLIVERSEN	11-Astronomy

**NAS 5-33002 University of New Hampshire - Durham 5602**  
DPU FOR PLASMA INSTRUMENT ON ISTP-WIND AND POLAR

Period	Obligations	
09/21/1989-06/04/1993	FY93: \$432,000	TOTAL: \$2,154,700
Prin. Invest.	NASA Tech. Officer	CASE Category
R TORBERT	GSFC/K OGILVIE	13-Physics

**NCC 1-184 University of New Hampshire - Durham 5603**  
ANALYSIS AND PUBLICATION OF SELECTED NASA/GTE DACOM  
DATA

Period	Obligations	
08/12/1993-08/11/1994	FY93: \$20,854	TOTAL: \$20,854
Prin. Invest.	NASA Tech. Officer	CASE Category
R C HARRISS	LARC/G W SACHSE	31-Atmos Sci

**NGT 00-030-059 University of New Hampshire - Durham 5604**  
NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM

Period	Obligations	
09/09/1991-08/31/1994	FY93: \$22,000	TOTAL: \$66,000
Prin. Invest.	NASA Tech. Officer	CASE Category
A D NOBRE	HQ/D M BUTLER	39-Env Sci, NEC
R HARRISS	....G S WILSON	

**NGT 00-030-196 University of New Hampshire - Durham 5605**  
NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM

Period	Obligations	
08/26/1993-08/31/1994	FY93: \$22,000	TOTAL: \$22,000
Prin. Invest.	NASA Tech. Officer	CASE Category
W MCDOWELL	HQ/G ASRAR	39-Env Sci, NEC
	....D M BUTLER	

**NGT 00-040-030 University of New Hampshire - Durham 5606**  
NGT-40030/UNIV NEW HAMPSHIRE/NATIONAL SPACE GRANT  
COLLEGE AND FELLOWSHIP PROGRAM

Period	Obligations	
05/29/1991-02/28/1994	FY93: \$173,000	TOTAL: \$493,000
Prin. Invest.	NASA Tech. Officer	CASE Category
D S BARETT	HQ/E T SCHWARTZ	99-Multi-Discip

**NGT 00-050-610 University of New Hampshire - Durham 5607**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM

Period	Obligations	
07/24/1990-06/30/1993	FY93: \$0	TOTAL: \$65,990
Prin. Invest.	NASA Tech. Officer	CASE Category
J M RYAN	HQ/F C OWENS	13-Physics

**NGT 00-050-657 University of New Hampshire - Durham 5608**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM

Period	Obligations	
08/29/1990-08/19/1993	FY93: \$0	TOTAL: \$66,000
Prin. Invest.	NASA Tech. Officer	CASE Category
R HARRISS	HQ/F C OWENS	13-Physics

**NGT 00-050-670 University of New Hampshire - Durham 5609**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM

Period	Obligations	
09/21/1992-08/19/1993	FY93: \$0	TOTAL: \$66,000
Prin. Invest.	NASA Tech. Officer	CASE Category
R C HARRIS	HQ/F C OWENS	39-Env Sci, NEC

**NGT 00-050-910 University of New Hampshire - Durham 5610**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM

Period	Obligations	
05/29/1992-06/30/1994	FY93: \$22,000	TOTAL: \$44,000
Prin. Invest.	NASA Tech. Officer	CASE Category
R B TORBETT	HQ/J ALEXANDER	13-Physics

**NASA'S UNIVERSITY PROGRAM  
NEW HAMPSHIRE (Continued)**

**NGT 00-051-144 University of New Hampshire - Durham 5611**  
GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
07/28/1993-08/31/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
P GRILL HQ/G LESANE 43-Chem Engr

**NGT 00-051-170 University of New Hampshire - Durham 5612**  
GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
07/28/1993-06/30/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J M RYAN GSFC/G SOFFEN 13-Physics

**NGT 00-080-009 University of New Hampshire - Durham 5613**  
INTERNATIONAL COLLABORATIVE EDUCATIONAL PROGRAM IN EARTH SYS  
*Period Obligations*  
08/03/1989-06/30/1994 FY93: \$0 TOTAL: \$439,101  
*Prin. Invest. NASA Tech. Officer CASE Category*  
E MOORE HQ/S G TILFORD 31-Atmos Sci  
J D MORRISON ....G A LESANE

**NSG-7411 University of New Hampshire - Durham 5614**  
THEORETICAL STUDIES IN SOLAR PARTICLES PHYSICS  
*Period Obligations*  
10/01/1977-04/30/1992 FY93: \$807 TOTAL: \$774,376  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J HOLLWEG HQ/H S AHLUWALIA 13-Physics  
.....S KANE

**NEW JERSEY**

**NAG 3-1244 New Jersey Institute of Technology 5615**  
ADAPTIVE NETWORK MANAGEMENT SCHEME FOR A SATELLITE COMMUNICATION BY NEURAL NETWORKS  
*Period Obligations*  
02/26/1991-08/05/1992 FY93: \$16 TOTAL: \$31,175  
*Prin. Invest. NASA Tech. Officer CASE Category*  
N ANSARI LERC/E A BOBINSKY 45-Elec Engr

**NAG 1-726 Princeton University 5616**  
COMPUTATIONAL REACTING GAS DYNAMICS  
*Period Obligations*  
11/18/1986-01/31/1993 FY93: \$0 TOTAL: \$703,559  
*Prin. Invest. NASA Tech. Officer CASE Category*  
S H LAM LARC/P A GNOFFO 41-Aero Engr

**NAG 1-834 Princeton University 5617**  
INTELLIGENT GUIDANCE AND CONTROL FOR WIND SHEAR EN COUNTER  
*Period Obligations*  
11/18/1987-06/30/1992 FY93: \$1,418 TOTAL: \$274,336  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R F STENGEL LARC/D A HINTON 41-Aero Engr  
.....P C SCHUTTE

**NAG 1-907 Princeton University 5618**  
DYNAMICS AND CONTROL OF AN AEROSPACE PLANE  
*Period Obligations*  
09/01/1988-09/30/1992 FY93: \$1 TOTAL: \$243,371  
*Prin. Invest. NASA Tech. Officer CASE Category*  
K D MEASE LARC/W T SUIT 41-Aero Engr  
.....D D MOERDER

**NAG 1-1072 Princeton University 5619**  
DYNAMICS AND CONTROL OF FLUCTUATING PRESSURE LOADS IN THE REATTACHMENT REGION OF SUPERSONIC FREE  
*Period Obligations*  
11/20/1989-12/31/1992 FY93: \$1 TOTAL: \$165,036  
*Prin. Invest. NASA Tech. Officer CASE Category*  
A SMITS LARC/W E ZORUMSKI 41-Aero Engr  
.....J C HARDIN

**NAG 1-1231 Princeton University 5620**  
DEVELOPMENT OF FILTERED RAYLEIGH SCATTERING FOR ACCURATE MEASUREMENT OF GAS VELOCITY  
*Period Obligations*  
03/21/1991-03/14/1993 FY93: \$1 TOTAL: \$88,474  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R B MILES LARC/R R ANTCLIFF 13-Physics  
W R LEMPERT

**NAG 1-1281 Princeton University 5621**  
MOLECULAR FLOW TAGGING MEASUREMENTS IN REACTING FLOW FIELDS  
*Period Obligations*  
06/18/1991-06/06/1992 FY93: \$0 TOTAL: \$109,942  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R B MILES LARC/G B NORTHAM 41-Aero Engr  
W R LEMPERT

**NAG 1-1501 Princeton University 5622**  
GUIDANCE AND CONTROL OF AN AEROSPACE PLANE  
*Period Obligations*  
04/09/1993-04/08/1994 FY93: \$35,000 TOTAL: \$35,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
K D MEASE LARC/W T SUIT 42-Astro Engr  
.....D D MOEDER

**NAG 2-561 Princeton University 5623**  
STUDIES IN ROTORCRAFT SYSTEM IDENTIFICATION  
*Period Obligations*  
02/03/1989-10/31/1993 FY93: \$63,248 TOTAL: \$180,420  
*Prin. Invest. NASA Tech. Officer CASE Category*  
H C CURTISS ARC/J W FLETCHER 41-Aero Engr  
R M MCKILLUP ....M B TISCHLER

**NAG 2-694 Princeton University 5624**  
STUDIES IN IDENTIFICATION OF ROTORCRAFT STRUCTURAL DYNAMICS CHARACTERISTICS FROM FLIGHT AND WIND....  
*Period Obligations*  
02/28/1991-06/30/1992 FY93: \$0 TOTAL: \$62,797  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R M MCKILLIP ARC/J F MADDEN 41-Aero Engr  
H C CURTISS ....J TOTAH

**NAG 2-718 Princeton University 5625**  
STUDIES OF CROSSING SHOCK INTERACTIONS AT MACH 3  
*Period Obligations*  
06/30/1991-06/14/1992 FY93: \$0 TOTAL: \$56,610  
*Prin. Invest. NASA Tech. Officer CASE Category*  
S M BOGDONOFF ARC/J G MARVIN 11-Astronomy  
.....C C HORSTMAN

**NASA'S UNIVERSITY PROGRAM**  
**NEW JERSEY (Continued)**

**NAG 2-734 Princeton University 5626**  
 UNSTRUCTURED MESH GENERATION AND FLOW PREDICTION  
*Period Obligations*  
 09/11/1991-05/31/1992 FY93: \$0 TOTAL: \$70,960  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 T J BAKER ARC/S E CLIFF-HOVEY 41-Aero Engr  
 A JAMESON

**NAG 3-1060 Princeton University 5633**  
 THERMOSOLUTAL CONVECTION AND MACROSEGREGATION IN DEN  
 DRITIC ALLOYS  
*Period Obligations*  
 07/24/1989-03/31/1993 FY93: \$0 TOTAL: \$262,674  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 K D MEASE LERC/L R BALKANY 42-Astro Engr  
 ....O F SPURLOCK

**NAG 2-746 Princeton University 5627**  
 A STUDY OF POLARIZED FAR-INFRARED RADIATION FOR SA  
 GITTARIUS B-2  
*Period Obligations*  
 12/10/1991-11/30/1992 FY93: \$2,957 TOTAL: \$44,520  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 G NOVAK ARC/C D LAUGHLIN 11-Astronomy  
 ....C M GILLESPIE

**NAG 3-1064 Princeton University 5634**  
 COAXIAL PLASMA THRUSTER RESEARCH  
*Period Obligations*  
 08/24/1989-02/14/1994 FY93: \$120,602 TOTAL: \$1,024,082  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R G JAHN LERC/D C BYERS 42-Astro Engr  
 A J KELLY ....J S SOVEY

**NAG 2-783 Princeton University 5628**  
 EXPERIMENTAL STUDIES IN HELICPTER  
*Period Obligations*  
 04/24/1992-08/31/1992 FY93: \$0 TOTAL: \$40,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R M MCKILLIP ARC/F F FELKER 41-Aero Engr  
 ....T R NORMAN

**NAG 3-1158 Princeton University 5635**  
 THE DYNAMICS OF DISORDER - ORDER TRANSITIONS IN HA RD  
 SPHERE COLLOIDAL DISPERSIONS  
*Period Obligations*  
 03/29/1991-12/31/1993 FY93: \$263,000 TOTAL: \$503,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 P M CHAIKIN LERC/T K GLASGOW 47-Materials Engr  
 P G DEBENEDETTI

**NAG 2-784 Princeton University 5629**  
 MESH GENERATION ENHANCEMENTS FOR SONIC BOOM PREDIC  
 TIONS  
*Period Obligations*  
 05/06/1992-03/31/1994 FY93: \$82,000 TOTAL: \$142,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 T J BAKER ARC/S E CLIFF-HOVEY 41-Aero Engr  
 A JAMESON ....R M HICKS

**NAG 3-1182 Princeton University 5636**  
 MICROGRAVITY STRUCTURES OF SPHERICAL AND CYLINDRICAL  
 FLAMES IN STAGNANT AND VERTICAL ENVIRONEMENTS  
*Period Obligations*  
 06/13/1990-01/14/1994 FY93: \$100,000 TOTAL: \$320,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 C K LAW LERC/D P STOCKER 46-Mech Engr

**NAG 2-818 Princeton University 5630**  
 RESEARCH INTO PREDICTION OF AIR-FRAME NACELLE INTE  
 REFERENCE  
*Period Obligations*  
 12/15/1992-08/31/1993 FY93: \$75,000 TOTAL: \$75,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A JAMESON ARC/S E CLIFF 41-Aero Engr  
 T J BAKER

**NAG 3-1231 Princeton University 5637**  
 SCIENTIFIC SUPPORT FOR A SPACE SHUTTLE DROPLET BUR NING  
 EXPERIMENT / 6740  
*Period Obligations*  
 01/02/1991-02/15/1994 FY93: \$167,143 TOTAL: \$485,636  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 F L DRYER LERC/J B HAGGARD 49-Engr, NEC

**NAG 3-259 Princeton University 5631**  
 BEHAVIOR OF FLUID GLOBULES IN EXTERNAL FIELDS  
*Period Obligations*  
 02/08/1982-12/31/1993 FY93: \$0 TOTAL: \$705,847  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D A SAVILLE LERC/A T CHAI 13-Physics  
 ....J A SALZMAN

**NAG 3-1242 Princeton University 5638**  
 STUDIES OF PREMIXED LAMINAR AND TURBULENT FLAMES AT  
 MICROGRAVITY  
*Period Obligations*  
 03/19/1991-10/05/1993 FY93: \$86,304 TOTAL: \$454,560  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 P D RONNEY LERC/K J WEILAND 46-Mech Engr  
 V YAKHUT

**NAG 3-1022 Princeton University 5632**  
 JOINT UNIV/NASA EXP AND COMP STUDY OF UNSTEADY SHOCK  
 WAVE TURB BOUNDARY LAYER INTERACTION  
*Period Obligations*  
 03/22/1989-02/13/1993 FY93: \$0 TOTAL: \$100,136  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A J SMITS LERC/W R HINGST 41-Aero Engr  
 ....A R PORRO

**NAG 3-1418 Princeton University 5639**  
 COMBUSTION SYNTHESIS OF MATERIALS IN MICROGRAVITY  
*Period Obligations*  
 02/05/1993-12/31/1993 FY93: \$135,000 TOTAL: \$135,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 I GLASSMAN LERC/J C JOHNSTON 47-Materials Engr  
 ....T K GLASGOW



**NASA'S UNIVERSITY PROGRAM  
NEW JERSEY (Continued)**

**NAG 5-616 Princeton University 5640**  
INTERSTELLAR MEDIUM ABSORPTION PROFILE SPECTROGRAPH (IMAPS)  
*Period* *Obligations*  
01/01/1983-10/31/1993 FY93: \$724,000 TOTAL: \$7,608,462  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
E B JENKINS GSFC/L J EARLY 13-Physics  
....R H PLESS

**NAG 5-899 Princeton University 5641**  
A TERRESTRIAL WATER BALANCE FOR THE FIRST ISLSCD FIELD EXPERIMENT (FIFE)  
*Period* *Obligations*  
05/01/1987-03/31/1992 FY93: \$0 TOTAL: \$321,674  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
E MILLY GSFC/M OWE 39-Env Sci, NEC  
E F WOOD ....F HALL

**NAG 5-1310 Princeton University 5642**  
SCIENCE VALIDATION AND COSMOLOGICAL STUDIES OF DATA COBE SAT  
*Period* *Obligations*  
11/15/1989-12/31/1993 FY93: \$72,000 TOTAL: \$368,456  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
D T WILKINSON GSFC/J MATHER 11-Astronomy

**NAG 5-1453 Princeton University 5643**  
ANALYSIS OF PULSAR TIMING DATA FOR GAMMA-RAY  
*Period* *Obligations*  
08/27/1990-09/30/1992 FY93: \$0 TOTAL: \$86,800  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J H TAYLOR GSFC/J P NORRIS 11-Astronomy  
....D A KNIFFEN

**NAG 5-1556 Princeton University 5644**  
MODELING OF THE ARCTIC ICE-OCEAN DYNAMICS AND THERMODYNAMICS  
*Period* *Obligations*  
05/01/1991-05/14/1994 FY93: \$16,100 TOTAL: \$55,292  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
G L MELLOR GSFC/S HAKKINEN 39-Env Sci, NEC

**NAG 5-1628 Princeton University 5645**  
APPLICATIONS OF SIR-C SYNTHETIC APERTURE RADAR TO HYDROLOGY  
*Period* *Obligations*  
06/27/1991-06/30/1994 FY93: \$63,576 TOTAL: \$186,892  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
E WOOD GSFC/E T ENGMAN 39-Env Sci, NEC

**NAG 5-1629 Princeton University 5646**  
HST GTO PARTICIPATION  
*Period* *Obligations*  
07/15/1991-10/31/1993 FY93: \$196,852 TOTAL: \$486,509  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
E J GROTH GSFC/S SOBIESKI 11-Astronomy

**NAG 5-1714 Princeton University 5647**  
SPECTROSCOPY OF THE LOCAL INTERSTELLAR MEDIUM  
*Period* *Obligations*  
08/01/1991-07/31/1993 FY93: \$0 TOTAL: \$30,087  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
E B JENKINS GSFC/S R HEAP 11-Astronomy  
....A M SMITH

**NAG 5-1769 Princeton University 5648**  
MODEL ATMOSPHERE ANALYSIS OF SELECTED LUMINOUS B STARS  
*Period* *Obligations*  
09/17/1991-09/30/1993 FY93: \$0 TOTAL: \$5,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
E L FLTZPATRICK GSFC/D WEST 11-Astronomy

**NAG 5-1816 Princeton University 5649**  
PROBING NEUTRON STAR EVOLUTION WITH GAMMA RAYS  
*Period* *Obligations*  
09/30/1991-10/14/1993 FY93: \$48,218 TOTAL: \$103,218  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R WIJERS GSFC/J P NORRIS 11-Astronomy  
....C A GEHRELS

**NAG 5-1854 Princeton University 5650**  
GAMMA-RAY EMISSION FROM ACCRETING NEUTRON STARS AND GAMMA RAYS FROM RAPIDLY SPINNING PULSARS  
*Period* *Obligations*  
01/02/1992-10/31/1993 FY93: \$49,898 TOTAL: \$92,898  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
M TAVANI GSFC/J P NORRIS 11-Astronomy  
....C A GEHRELS

**NAG 5-1875 Princeton University 5651**  
RADIO SOURCES AND THE CLUSTER ENVIRONMENT ATZ = 0  
*Period* *Obligations*  
02/10/1992-12/14/1994 FY93: \$0 TOTAL: \$20,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R A DALY GSFC/R PETRE 11-Astronomy

**NAG 5-1901 Princeton University 5652**  
MODELS AND SCENARIOS FOR GAMMA-RAY BURSTS  
*Period* *Obligations*  
02/20/1992-12/31/1993 FY93: \$90,000 TOTAL: \$120,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
B PACZYNSKI GSFC/J NORRIS 11-Astronomy  
....N GEHRELS

**NAG 5-1940 Princeton University 5653**  
THEORETICAL STUDIES OF CRUSTAL DEFORMATION DUE TO CLACIAL, TIDAL, AND ATMOSPHERIC LOADS  
*Period* *Obligations*  
03/12/1992-03/14/1994 FY93: \$105,000 TOTAL: \$214,999  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
W J MORGAN GSFC/B G BILLS 32-Geological Sci

**NAG 5-2234 Princeton University 5654**  
GAMMA-RAY EMISSION FROM GLOBULAR CLUSTERS  
*Period* *Obligations*  
04/08/1993-04/14/1994 FY93: \$8,848 TOTAL: \$8,848  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
M TAVANI GSFC/J P NORRIS 11-Astronomy  
....N WHITE

**NASA'S UNIVERSITY PROGRAM**  
**NEW JERSEY (Continued)**

**NAG 5-2326 Princeton University 5655**  
SIMULATION OF BOREAL ECOSYSTEM CARBON AND WATER BUDGETS: SCALING FROM LOCAL TO REGIONAL EXTENTS  

<i>Period</i>	<i>Obligations</i>	
07/16/1993-07/31/1994	FY93: \$5,000	TOTAL: \$5,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
E WOOD	GSFC/F G HALL	39-Env Sci, NEC
	....P J SELLERS	

**NAG 8-749 Princeton University 5656**  
THE ROLES OF FLUID MOTION AND OTHER TRANSPORT PHENOMENA IN THE MORPHOLOGY OF MATERIALS  

<i>Period</i>	<i>Obligations</i>	
09/01/1988-11/30/1992	FY93: \$1,914	TOTAL: \$268,086
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
D A SAVILLE	MSFC/R S SNYDER	43-Chem Engr

**NAG 8-878 Princeton University 5657**  
DIELECTRIC AND ELECTROHYDRODYNAMIC PROPERTIES OF SUSPENSIONS  

<i>Period</i>	<i>Obligations</i>	
04/22/1991-04/21/1994	FY93: \$115,716	TOTAL: \$333,052
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
D SAVILLE	MSFC/R SYNDER	45-Elec Engr

**NAG 8-969 Princeton University 5658**  
STUDIES IN ELECTROHYDRODYNAMICS  

<i>Period</i>	<i>Obligations</i>	
06/02/1993-03/31/1994	FY93: \$133,000	TOTAL: \$133,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
D A SAVILLE	MSFC/R C DARTY	43-Chem Engr

**NAGW 1482 Princeton University 5659**  
NEW RADIOMETERS FOR BALLOON BORNE 3K ISOTROPY EXPERIMENT  

<i>Period</i>	<i>Obligations</i>	
11/01/1988-11/30/1993	FY93: \$42,000	TOTAL: \$195,730
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
D T WILKINSON	HQ/G LEVY	13-Physics

**NAGW 1763 Princeton University 5660**  
A STATISTICAL ANALYSIS OF SOUTH POLAR SEA ICE FORMATION  

<i>Period</i>	<i>Obligations</i>	
05/16/1989-06/30/1994	FY93: \$0	TOTAL: \$292,807
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
M J PHELAN	HQ/R H THOMAS	33-Oceanography
R D DE VEAUX	....W S WILSON	

**NAGW 1973 Princeton University 5661**  
ASTROPHYSICAL STUDIES  

<i>Period</i>	<i>Obligations</i>	
02/21/1990-01/31/1994	FY93: \$54,000	TOTAL: \$281,565
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
B T DRAINE	HQ/G S LEVY	11-Astronomy

**NAGW 2118 Princeton University 5662**  
DISTANT CLUSTERS OF GALAXIES  

<i>Period</i>	<i>Obligations</i>	
05/23/1990-12/31/1993	FY93: \$84,632	TOTAL: \$294,742
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
J E GUNN	HQ/G S KUTTER	11-Astronomy
	....G R RIEGLER	

**NAGW 2173 Princeton University 5663**  
HUBBLE SPACE TELESCOPICS AND X-RAY STUDIES OF GRAVITATIONAL LENSES  

<i>Period</i>	<i>Obligations</i>	
06/21/1990-12/31/1993	FY93: \$81,716	TOTAL: \$282,953
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
E L TURNER	HQ/G S KUTTER	11-Astronomy
	....G R RIEGLER	

**NAGW 2419 Princeton University 5664**  
ANGULAR MOMENTUM TRANSPORT IN ASTROPHYSICAL DISKS  

<i>Period</i>	<i>Obligations</i>	
08/05/1991-12/31/1993	FY93: \$91,000	TOTAL: \$264,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
J GOODMAN	HQ/G S KUTTER	11-Astronomy
	....G R RIEGLER	

**NAGW 2448 Princeton University 5665**  
THE UNIVERSE AT MODERATE REDSHIFT  

<i>Period</i>	<i>Obligations</i>	
04/03/1991-12/31/1993	FY93: \$335,000	TOTAL: \$975,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
J P OSTRICKER	HQ/G S KUTTER	11-Astronomy
	....G R RIEGLER	

**NAGW 2538 Princeton University 5666**  
MULTIPLE TIME SCALE NUMERICAL SIMULATIONS ON PLASMA TRANSPORT AT THE EARTH'S MAGNETOPAUSE  

<i>Period</i>	<i>Obligations</i>	
07/24/1991-04/30/1994	FY93: \$35,307	TOTAL: \$171,141
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
H OKUDA	HQ/M M MELLOTT	13-Physics
	....J D BOHLIN	

**NAGW 2801 Princeton University 5667**  
A NOVEL APPLICATION OF FOURIER TRANSFORM SPECTROSCOPY WITH HEMT AMPLIFIERS AT MICROWAVE FREQUENCIES  

<i>Period</i>	<i>Obligations</i>	
01/03/1992-01/31/1994	FY93: \$168,264	TOTAL: \$336,877
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
D T WILKINSON	HQ/J K ALEXANDER	11-Astronomy
	....D A HOLLAND	

**NAGW 3124 Princeton University 5668**  
THEORETICAL INVESTIGATIONS OF THE DYNAMICS OF PATTERN AND SCALE IN SERPENTINE GRASSLAND  

<i>Period</i>	<i>Obligations</i>	
06/29/1992-06/30/1994	FY93: \$95,686	TOTAL: \$185,686
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
S A LEVIN	HQ/M M AVERNER	54-Env Biology

**NAGW 3137 Princeton University 5669**  
NAGW-3137/PRINCETON UNIV/ASSIMILATION OF SATELLITE COLOR OBSERVATIONS IN A COUPLED OCEAN GCM-ECOSYST  

<i>Period</i>	<i>Obligations</i>	
07/23/1992-05/31/1994	FY93: \$70,000	TOTAL: \$155,790
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
J SARMIENTO	HQ/R E MURPHY	33-Oceanography
	....J A KAYE	

**NASA'S UNIVERSITY PROGRAM  
NEW JERSEY (Continued)**

**NAGW 3233 Princeton University 5670**  
NAGW-3233/PRINCETON UNIV/TEACHING TEACHERS TO TEACH  
HANDS-ON ASTRONOMY  
*Period Obligations*  
11/02/1992-07/31/1993 FY93: \$4,875 TOTAL: \$4,875  
*Prin. Invest. NASA Tech. Officer CASE Category*  
P E TURNER HQ/L LAPIANA 11-Astronomy  
....G P NEWTON

**NAGW 3589 Princeton University 5671**  
THE TRANSITION FROM DIAPYCNISM TO DIKE INTRUSION  
*Period Obligations*  
05/14/1993-03/31/1994 FY93: \$36,400 TOTAL: \$36,400  
*Prin. Invest. NASA Tech. Officer CASE Category*  
A M RUBIN HQ/J M BOYCE 32-Geological Sci

**NAGW 3706 Princeton University 5672**  
ANALYSIS OF DEFORMATION OF VENUS  
*Period Obligations*  
08/11/1993-04/30/1994 FY93: \$60,000 TOTAL: \$60,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J SUPPE HQ/J T BERGSTRALH 32-Geological Sci

**NAGW 3741 Princeton University 5673**  
LANDSCAPE DYNAMICS OF NORTHEASTERN FORESTS  
*Period Obligations*  
09/14/1993-06/30/1996 FY93: \$54,807 TOTAL: \$54,807  
*Prin. Invest. NASA Tech. Officer CASE Category*  
S W PACALA HQ/D E WICKLAND 39-Env Sci, NEC  
S A LEVIN ....A C JANETOS  
C D CANHAN

**NAS 5-30110 Princeton University 5674**  
SPACE TELESCOPE IMAGING SPECTROGRAPH PROGRAM  
SUPPORT  
*Period Obligations*  
06/17/1987-12/31/1993 FY93: \$0 TOTAL: \$253,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
E JENKINS GSFC/D VITAGLINO 11-Astronomy

**NAS 5-31719 Princeton University 5675**  
EOS INVESTIGATION 'GLOBAL HYDROLOGIC PROCESSES AND  
CLIMATE  
*Period Obligations*  
10/22/1991-10/21/1996 FY93: \$180,500 TOTAL: \$446,500  
*Prin. Invest. NASA Tech. Officer CASE Category*  
E WOOD GSFC/W LAU 39-Env Sci, NEC

**NGL31-1252 Princeton University 5676**  
AIR TRAFFIC CONTROL TECHNOLOGY \$100,000  
*Period Obligations*  
11/15/1971-01/31/1994 FY93: \$130,000 TOTAL: \$1,819,901  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R F STENGEL LARC/F R MORRELL 41-Aero Engr  
L M SWEET

**NGT 00-030-049 Princeton University 5677**  
NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
09/09/1991-08/31/1994 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D S LIN HQ/D M BUTLER 39-Env Sci, NEC  
E F WOOD ....G S WILSON

**NGT 00-030-090 Princeton University 5678**  
NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
09/23/1991-08/31/1993 FY93: \$0 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
B M LOFGREN HQ/D M BUTLER 39-Env Sci, NEC  
S MANABE ....G S WILSON

**NGT 00-030-197 Princeton University 5679**  
NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
08/27/1993-08/31/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
S G PHILANDER HQ/G ASRAR 99-Multi-Discip  
....D M BUTLER

**NGT 00-050-425 Princeton University 5680**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
08/01/1989-12/31/1991 FY93: \$0 TOTAL: \$40,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J SARMIENTO HQ/F C OWENS 12-Chemistry

**NGT 00-050-622 Princeton University 5681**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
06/12/1990-06/30/1993 FY93: \$0 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
M DRAGOVAN HQ/F C OWENS 13-Physics

**NGT 00-050-826 Princeton University 5682**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
08/12/1991-08/31/1994 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R B MILES HQ/F C OWENS 13-Physics

**NGT 00-051-073 Princeton University 5683**  
GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
06/24/1993-06/30/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D A SAVILLE HQ/B CARPENTER 43-Chem Engr

**NGT 00-051-140 Princeton University 5684**  
GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
07/29/1993-08/31/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
C GROSS HQ/R WHITE 56-Medical Sciences

**NGT 00-070-289 Princeton University 5685**  
NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
MINORITY FOCUS PROGRAM  
*Period Obligations*  
06/25/1992-06/30/1994 FY93: \$22,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
G KARNIADAKIS HQ/D K RUSSELL 22-Computer Science

**NASA'S UNIVERSITY PROGRAM  
NEW JERSEY (Continued)**

**NGT 00-090-226 Princeton University 5686**  
UNDERGRADUATE STUDENT RESEARCHERS (UMF) PROGRAM  
*Period Obligations*  
09/17/1993-08/14/1994 FY93: \$12,000 TOTAL: \$12,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
H MCCULLOCH HQ/D K RUSSELL 99-Multi-Discip

**NAG 1-1134 Rider College 5687**  
ELECTROMAGNETIC INTERACTIONS OF GALACTIC COSMIC RAYS.  
*Period Obligations*  
05/04/1990-04/30/1993 FY93: \$1 TOTAL: \$138,453  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J W NORBURY LARC/L W TOWNSEND 13-Physics  
...../E J CONWAY

**NAG 2-645 Rutgers State University - New Brunswick 5688**  
AI AND DESIGN: COMPUTER AIDED PRODUCTIVITY (CAP)  
*Period Obligations*  
06/20/1990-06/30/1993 FY93: \$514,510 TOTAL: \$1,914,683  
*Prin. Invest. NASA Tech. Officer CASE Category*  
S AMAREL ARC/P E FRIEDLAND 22-Computer Science  
L STEINBERG

**NAG 2-668 Rutgers State University - New Brunswick 5689**  
CONTENT ADDRESSABLE MEMORY PROJECT  
*Period Obligations*  
08/13/1990-02/28/1994 FY93: \$279,389 TOTAL: \$1,028,489  
*Prin. Invest. NASA Tech. Officer CASE Category*  
S Y LEVY ARC/H LUM 22-Computer Science  
J S HALL ...../D MCKELLAR

**NAG 2-798 Rutgers State University - New Brunswick 5690**  
DEVELOPMENT OF A TWO-EQUATION TURBULENCE MODEL FOR  
HYPERSONIC FLOWS  
*Period Obligations*  
08/24/1992-11/30/1993 FY93: \$59,969 TOTAL: \$75,615  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D D KNIGHT ARC/T J COAKLEY 41-Aero Engr  
...../J G MARVIN

**NAG 2-817 Rutgers State University - New Brunswick 5691**  
ARTIFICIAL INTELLIGENCE AND DESIGN OF AEROSPACE VEHICLES  
*Period Obligations*  
12/18/1992-11/30/1993 FY93: \$137,434 TOTAL: \$137,434  
*Prin. Invest. NASA Tech. Officer CASE Category*  
S AMAREL ARC/G H KIDWELL 41-Aero Engr  
L STEINBERG ...../H MIURA

**NAG 2-829 Rutgers State University - New Brunswick 5692**  
FEATURE ISOLATION AND QUANTIFICATION OF EVOLVING DATASETS  
*Period Obligations*  
03/25/1993-01/31/1994 FY93: \$89,671 TOTAL: \$89,671  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D SILVER ARC/T A LASINSKI 22-Computer Science

**NAG 9-26 Rutgers State University - New Brunswick 5693**  
BERYLLIUM ISOTOPES IN METEORITES  
*Period Obligations*  
02/01/1983-03/01/1994 FY93: \$0 TOTAL: \$359,762  
*Prin. Invest. NASA Tech. Officer CASE Category*  
G F HERZOG JSC/I D BROWNE 11-Astronomy  
T H KRUSE

**NAG 9-35 Rutgers State University - New Brunswick 5694**  
METAL SILICATE RELATIONSHIPS  
*Period Obligations*  
02/01/1983-02/01/1993 FY93: \$0 TOTAL: \$488,781  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R H HEWINS JSC/I D BROWNE 32-Geological Sci

**NAG 9-304 Rutgers State University - New Brunswick 5695**  
PETROLOGY OF POLYMICT BECCIASON THE MOON  
*Period Obligations*  
08/01/1988-08/01/1992 FY93: \$0 TOTAL: \$93,115  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J S DELANEY JSC/I D BROWNE 32-Geological Sci

**NAGW 3391 Rutgers State University - New Brunswick 5696**  
SIMULATION AND ANALYSIS OF METEORIC MATERIALS  
*Period Obligations*  
03/19/1993-02/28/1994 FY93: \$87,551 TOTAL: \$87,551  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R H HEWINS HQ/H C BRINTON 13-Physics

**NCA 2-664 Rutgers State University - New Brunswick 5697**  
CONTROLLED ENVIRONMENT INTERCROPPING OF LETTUCE AND TOMATOES  
*Period Obligations*  
10/07/1991-09/30/1993 FY93: \$29,952 TOTAL: \$69,936  
*Prin. Invest. NASA Tech. Officer CASE Category*  
H W JANES ARC/R D MACELROY 55-Agriculture Sci

**NCC 2-802 Rutgers State University - New Brunswick 5698**  
PROTOCOL AND RECORD FOR SCIENTIFIC MODEL DEVELOPMENT  
*Period Obligations*  
05/20/1993-10/31/1993 FY93: \$30,000 TOTAL: \$30,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
T ELLMAN ARC/P E FRIEDLAND 22-Computer Science  
...../D E THOMPSON

**NGT 00-030-063 Rutgers State University - New Brunswick 5699**  
NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
09/19/1991-08/31/1994 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
M G HUGHES HQ/D M BUTLER 39-Env Sci, NEC  
D ROBINSON ...../G S WILSON

**NASA'S UNIVERSITY PROGRAM**  
**NEW JERSEY (Continued)**

**NGT 00-030-164 Rutgers State University - New Brunswick 5700**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  

Period	Obligations	
08/26/1993-08/31/1994	FY93: \$22,000	TOTAL: \$22,000
Prin. Invest.	NASA Tech. Officer	CASE Category
D A ROBINSON	HQ/G ASRAR	39-Env Sci, NEC
	....D M BUTLER	

**NGT 00-050-836 Rutgers State University - New Brunswick 5701**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  

Period	Obligations	
08/01/1991-06/30/1994	FY93: \$22,000	TOTAL: \$66,000
Prin. Invest.	NASA Tech. Officer	CASE Category
R H HEWINS	HQ/F C OWENS	32-Geological Sci

**NGT 00-051-150 Rutgers State University - New Brunswick 5702**  
 GRADUATE STUDENT RESEARCHERS PROGRAM  

Period	Obligations	
06/23/1993-07/31/1994	FY93: \$22,000	TOTAL: \$22,000
Prin. Invest.	NASA Tech. Officer	CASE Category
J M WIENCEK	HQ/D A HOLLAND	43-Chem Engr

**NGT 00-070-205 Rutgers State University - New Brunswick 5703**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED MINORITY FOCUS PROGRAM  

Period	Obligations	
12/14/1990-08/31/1993	FY93: \$0	TOTAL: \$65,000
Prin. Invest.	NASA Tech. Officer	CASE Category
S AMAREL	HQ/F C OWENS	45-Elec Engr

**NAGW 3499 Rutgers State University - Newark 5704**  
 COSMOGENIC RADIONUCLIDES IN EXTRATERRESTRIAL MATERIALS  

Period	Obligations	
05/12/1993-02/28/1994	FY93: \$58,666	TOTAL: \$58,666
Prin. Invest.	NASA Tech. Officer	CASE Category
G F HERZOG	HQ/J BOYCE	32-Geological Sci

**NGT 00-050-542 Rutgers State University - Newark 5705**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  

Period	Obligations	
06/05/1990-08/14/1993	FY93: \$0	TOTAL: \$77,040
Prin. Invest.	NASA Tech. Officer	CASE Category
R AVISSAR	HQ/F C OWENS	19-Phys Sci, NEC

**NAG 3-1453 Rutgers State University - Piscataway 5706**  
 OSCILLATORY THERMOCAPILLARY CONVECTION  

Period	Obligations	
02/11/1993-02/07/1994	FY93: \$68,911	TOTAL: \$68,911
Prin. Invest.	NASA Tech. Officer	CASE Category
A ZEBIB	LERC/R L THOMPSON	46-Mech Engr

**NAG 5-1750 Rutgers State University - Piscataway 5707**  
 A STUDY OF TIME VARIABILITY IN QUASARS I: 1525+ 227 (LB9743), A QUASAR WITH A LARGE L/T  

Period	Obligations	
08/19/1991-08/31/1993	FY93: \$0	TOTAL: \$15,000
Prin. Invest.	NASA Tech. Officer	CASE Category
T A MATILSKY	GSFC/R PETRE	11-Astronomy

**NAG 8-975 Rutgers State University - Piscataway 5708**  
 THERMAL OPTIMIZATION OF GROWTH AND QUALITY OF PROTEIN CRYSTALS  

Period	Obligations	
06/21/1993-06/14/1994	FY93: \$140,000	TOTAL: \$140,000
Prin. Invest.	NASA Tech. Officer	CASE Category
J M WIENCEK	MSFC/M L PUSEY	12-Chemistry
E ARNOLD		

**NAGW 2263 Rutgers State University - Piscataway 5709**  
 TRANSIENT HEATING IN THE SOLAR ACCRETION DISK  

Period	Obligations	
02/26/1991-10/31/1993	FY93: \$50,000	TOTAL: \$150,000
Prin. Invest.	NASA Tech. Officer	CASE Category
R H HEWINS	HQ/J A NUTH	19-Phys Sci, NEC

**NAGW 2658 Rutgers State University - Piscataway 5710**  
 NAGW-2658/RUTGERS UNIV/A PARAMETERIZATION OF SUBGR ID-SCALE LAND-ATMOSPHERE INTERACTIONS FOR ATOMSPH  

Period	Obligations	
09/20/1991-12/31/1993	FY93: \$46,303	TOTAL: \$129,048
Prin. Invest.	NASA Tech. Officer	CASE Category
R AVISSAR	HQ/R H WARING	31-Atmos Sci
	....R E MURPHY	

**NAGW 3568 Rutgers State University - Piscataway 5711**  
 KINEMATICS OF NORTHERN HEMISPHERE SNOW COVER AND R ESULTANT IMPACTS ON SURFACE ALBEDO  

Period	Obligations	
05/13/1993-04/30/1994	FY93: \$83,685	TOTAL: \$83,685
Prin. Invest.	NASA Tech. Officer	CASE Category
D A ROBINSON	HQ/R H THOMAS	39-Env Sci, NEC
	....R A SCHIFFER	

**NAGW 3649 Rutgers State University - Piscataway 5712**  
 PETROLOGY AND TRACE ELEMENT GEOCHEMISTRY OF POLYMI CT BRECCIAS AND CONSTITUENT LITHOLOGIES  

Period	Obligations	
06/08/1993-07/31/1994	FY93: \$14,696	TOTAL: \$14,696
Prin. Invest.	NASA Tech. Officer	CASE Category
J DELANEY	HQ/RAHE	32-Geological Sci

**NGT 00-030-070 Rutgers State University - Piscataway 5713**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  

Period	Obligations	
09/06/1991-08/31/1994	FY93: \$22,000	TOTAL: \$66,000
Prin. Invest.	NASA Tech. Officer	CASE Category
S S LUQUE	HQ/D M BUTLER	39-Env Sci, NEC
R LATHROP	....G S WILSON	

**NASA'S UNIVERSITY PROGRAM  
NEW JERSEY (Continued)**

**NGT 00-050-707 Rutgers State University - Piscataway 5714**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM

Period	Obligations	
06/04/1991-06/30/1994	FY93: \$22,000	TOTAL: \$66,000
Prin. Invest.	NASA Tech. Officer	CASE Category
T WEI	HQ/F C OWENS	46-Mech Engr

**NAGW 1877 Stevens Institute of Technology 5715**  
CAMDEN MIDDLE SCHOOL PROGRAM MATHEMATICS SCIENCE AND COMPUTER PROJECT

Period	Obligations	
02/07/1990-06/30/1994	FY93: \$83,721	TOTAL: \$277,421
Prin. Invest.	NASA Tech. Officer	CASE Category
T G WILLIAMS	HQ/B L WHITE	29-Math/Cmputer, NEC
	....A LUDI	

**NGT 00-040-032 Stevens Institute of Technology 5716**  
NATIONAL SPACE GRANT COLLEGE AND FELLOWSHIP PROGRAM

Period	Obligations	
06/05/1991-02/28/1994	FY93: \$170,000	TOTAL: \$490,000
Prin. Invest.	NASA Tech. Officer	CASE Category
D RICHMAN	HQ/E T SCHWARTZ	99-Multi-Discip

**NAG 9-567 Univ of Medicine And Dentistry 5717**  
MEDICAL AND SURGICAL EVALUATION AND CARE OF ILLNESS AND INJURY IN SPACE

Period	Obligations	
12/18/1991-05/01/1994	FY93: \$92,000	TOTAL: \$184,500
Prin. Invest.	NASA Tech. Officer	CASE Category
J SIEGEL	JSC/R BILLICA	56-Medical Sciences

**NAS 9-17276 Univ of Medicine And Dentistry 5718**  
STUDY-PROTEIN METABOLISM DURING SPACE FL

Period	Obligations	
11/01/1984-08/01/1994	FY93: \$210,000	TOTAL: \$1,764,085
Prin. Invest.	NASA Tech. Officer	CASE Category
P STEIN	JSC/K NEWKIRK	56-Medical Sciences

**NAS 9-18775 Univ of Medicine And Dentistry 5719**  
MEASUREMENT OF ENERGY EXPENDITURE DURING SPACE FLT

Period	Obligations	
10/09/1992-01/01/1994	FY93: \$60,231	TOTAL: \$60,231
Prin. Invest.	NASA Tech. Officer	CASE Category
	JSC/A PLAZA	59-Life Sci, NEC

**NEW MEXICO**

**NAG 8-196 New Mexico Highlands University 5720**  
JOINT VENTURE

Period	Obligations	
04/29/1991-06/01/1993	FY93: \$27,500	TOTAL: \$99,500
Prin. Invest.	NASA Tech. Officer	CASE Category
B TAYLOR	MSFC/F SIX	19-Phys Sci, NEC
B CLARK	....C R CHAPPELL	

**NGT 00-090-070 New Mexico Highlands University 5721**  
INTEGRATED APPROACH TO ENGINEERING EDUCATION IN A MINORITY

Period	Obligations	
09/29/1992-09/14/1993	FY93: \$148,708	TOTAL: \$148,708
Prin. Invest.	NASA Tech. Officer	CASE Category
H JENSEN	HQ/B WHITE	99-Multi-Discip

**NAG 5-767 New Mexico Institute of Mining & Tech 5722**  
THE DEATH WATCH: MONITORING THE MOST MASSIVE STARGALAXY

Period	Obligations	
05/01/1986-02/28/1994	FY93: \$14,490	TOTAL: \$199,084
Prin. Invest.	NASA Tech. Officer	CASE Category
D J RAYMOND	GSFC/D WEST	11-Astronomy
D N BROWN		
G SONNEBORN		

**NAG 5-1848 New Mexico Institute of Mining & Tech 5723**  
PSPRC OBSERVATIONS OF CLUSTERS WITH WIDE ANGLE TAI LED RADIO GALAXIES

Period	Obligations	
12/12/1991-12/31/1992	FY93: \$0	TOTAL: \$5,000
Prin. Invest.	NASA Tech. Officer	CASE Category
J EILEK	GSFC/R PETRE	11-Astronomy

**NAG 5-5004 New Mexico Institute of Mining & Tech 5724**  
DESIGN AND PRODUCTION OF SHAPED CHARGES HAVING CALCIUM LINER

Period	Obligations	
04/15/1993-04/14/1995	FY93: \$19,584	TOTAL: \$19,584
Prin. Invest.	NASA Tech. Officer	CASE Category
P PERSSON	GSFC/L J EARLY	13-Physics
	....R H PLESS	

**NAG 6-104 New Mexico Institute of Mining & Tech 5725**  
DESIGN AND PRODUCTION OF SHAPED CHARGES HAVING A CALCIUM LINER

Period	Obligations	
04/15/1993-04/14/1995	FY93: \$0	TOTAL: \$0
Prin. Invest.	NASA Tech. Officer	CASE Category
P PEARSON	GSFC/L J EARLY	13-Physics
	....R H PLESS	

**NAG 8-66 New Mexico Institute of Mining & Tech 5726**  
GRANT ENTITLED 'CLOUD LIGHTNING OBSERVATIONS FROM U-2 AIRCRAFT.'

Period	Obligations	
05/12/1986-09/30/1993	FY93: \$0	TOTAL: \$246,734
Prin. Invest.	NASA Tech. Officer	CASE Category
M BROOK	MSFC/R BLAKESLEE	45-Elec Engr
	....H J CHRISTIAN	

**NAGW 1591 New Mexico Institute of Mining & Tech 5727**  
MAGNETIC FIELDS AND CENTRAL STRUCTURE IN THE HOT GAS IN CLUSTER

Period	Obligations	
12/30/1988-05/31/1993	FY93: \$0	TOTAL: \$115,000
Prin. Invest.	NASA Tech. Officer	CASE Category
J A EILEK	HQ/L J KALUZIENSKI	11-Astronomy
	....A N BUNNER	

**NASA'S UNIVERSITY PROGRAM**  
**NEW MEXICO (Continued)**

**NAS 5-33038 New Mexico Institute of Mining & Tech 5728**  
 MAINTENANCE AND OPERATION OF JORC  

<i>Period</i>	<i>Obligations</i>	
10/04/1989-01/31/1993	FY93: \$0	TOTAL: \$84,750
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
F KUELLMER	GSFC/M NIEDNER	99-Multi-Discip

**NCC 1-142 New Mexico Institute of Mining & Tech 5729**  
 A STUDY OF VARIATIONS OF NITROGEN DIOXIDE USING SME AND SAGE DATA.  

<i>Period</i>	<i>Obligations</i>	
06/18/1990-12/31/1993	FY93: \$0	TOTAL: \$44,999
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
R J THOMAS	LARC/J M ZAWODNY	31-Atmos Sci

**NCC 2-364 New Mexico Institute of Mining & Tech 5730**  
 EVOLUTION OF PHOTON AND PARTICLE SPECTRA IN COMPA LUMINOUS OBJECTS  

<i>Period</i>	<i>Obligations</i>	
10/01/1987-08/31/1993	FY93: \$15,000	TOTAL: \$87,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
J A EILEK	ARC/F C WITTEBORN	11-Astronomy

**NAG 3-1328 New Mexico State University - Las Cruces 5731**  
 CHARACTERIZATION OF ADVANCED COMPOSITE MATERIALS U SING THE ACOUSTO-ULTRASONIC NDE METHOD  

<i>Period</i>	<i>Obligations</i>	
02/12/1992-02/13/1994	FY93: \$19,989	TOTAL: \$36,989
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
V K CHOO	LERC/A VARY	47-Materials Engr

**NAG 5-1392 New Mexico State University - Las Cruces 5732**  
 INVESTIGATION BANDWIDTH - EFFICIENT CODING/MODUL.  

<i>Period</i>	<i>Obligations</i>	
05/22/1990-04/14/1992	FY93: \$0	TOTAL: \$299,406
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
F CARDEN	GSFC/W H MILLER	49-Engr, NEC
S HORAN	....J C MORAKIS	

**NAG 5-1491 New Mexico State University - Las Cruces 5733**  
 TELEMETERING AND TELECOMMUNICATIONS RESEARCH  

<i>Period</i>	<i>Obligations</i>	
12/10/1990-01/31/1994	FY93: \$800,000	TOTAL: \$2,384,076
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
F CARDEN	GSFC/D WILSON	49-Engr, NEC
S HORAN	....W H MILLER	

**NAG 5-1516 New Mexico State University - Las Cruces 5734**  
 OPTICAL AND GAMMA RAY STUDY OF GRO PHASE I TARGETS  

<i>Period</i>	<i>Obligations</i>	
04/17/1991-08/31/1993	FY93: \$0	TOTAL: \$66,073
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
B J MCNAMARA	GSFC/J P NORRIS	11-Astronomy
	....D A KNIFFEN	

**NAG 5-1737 New Mexico State University - Las Cruces 5735**  
 ROSAT PSPC OBSERVATION OF POOR CLUSTERS CONTAINING EXTENDED RADIO SOURCES  

<i>Period</i>	<i>Obligations</i>	
08/15/1991-12/14/1993	FY93: \$0	TOTAL: \$29,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
J O BURNS	GSFC/R PETRE	11-Astronomy

**NAG 5-1819 New Mexico State University - Las Cruces 5736**  
 OBSERVATIONS OF POOR GALAXY CLUSTERS WITH EXTENDED  

<i>Period</i>	<i>Obligations</i>	
11/01/1991-10/31/1994	FY93: \$16,000	TOTAL: \$31,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
J O BURNS	GSFC/R PETRE	11-Astronomy

**NAG 5-1924 New Mexico State University - Las Cruces 5737**  
 X-RAY EMISSION FROM THE EDGE-ON SPIRAL NGC4631  

<i>Period</i>	<i>Obligations</i>	
03/04/1992-03/14/1994	FY93: \$0	TOTAL: \$30,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
R A WALTERBOS	GSFC/R PETRE	11-Astronomy

**NAG 5-2070 New Mexico State University - Las Cruces 5738**  
 STUDY WEIGHT REDUCTION OPTIONS FOR WIZARD  

<i>Period</i>	<i>Obligations</i>	
08/25/1992-08/31/1993	FY93: \$35,013	TOTAL: \$35,013
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
R L GOLDEN	GSFC/R E STREITMATTER	13-Physics
	....J F ORMES	

**NAG 5-2091 New Mexico State University - Las Cruces 5739**  
 ROSAT PSPC IMAGING OF GAMMA-RAY BURST FIELDS  

<i>Period</i>	<i>Obligations</i>	
09/02/1992-09/14/1993	FY93: \$15,000	TOTAL: \$15,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
B J MCNAMARA	GSFC/R PETRE	11-Astronomy

**NAG 5-2142 New Mexico State University - Las Cruces 5740**  
 ADVANCED S-BAND STUDIES USING THE TDRSS COMMUNICAT IONS SATELLITE  

<i>Period</i>	<i>Obligations</i>	
11/23/1992-11/30/1993	FY93: \$96,305	TOTAL: \$96,305
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
W OSBORN	GSFC/W H MILLER	49-Engr, NEC

**NAG 8-895 New Mexico State University - Las Cruces 5741**  
 LUNAR DUST MITIGATION: MECHANISMS OF DUST LEVITA- TION  

<i>Period</i>	<i>Obligations</i>	
10/21/1991-10/27/1993	FY93: \$0	TOTAL: \$20,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
J O BURNS	MSFC/M E NEIN	11-Astronomy

**NASA'S UNIVERSITY PROGRAM**  
**NEW MEXICO (Continued)**

**NAG 8-939 New Mexico State University - Las Cruces 5742**  
 STUDIES OF DUST AND ULTRAVIOLET TELESCOPES ON THE MOON  
*Period Obligations*  
 10/01/1992-10/14/1993 FY93: \$15,000 TOTAL: \$15,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J O BURNS MSFC/M E NEIN 42-Astro Engr

**NAG 8-986 New Mexico State University - Las Cruces 5743**  
 DEFINITION OF THE LUNAR ENVIRONMENT MEASUREMENT PACKAGE FOR THE LUNAR ULTRAVIOLET TRANSIT TELESCOP  
*Period Obligations*  
 07/29/1993-07/31/1994 FY93: \$9,356 TOTAL: \$9,356  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J D BURNS MSFC/M E NEIN 31-Atmos Sci

**NAG 9-396 New Mexico State University - Las Cruces 5744**  
 A CONTINUING STUDY OF LUNAR ASTRONOMICAL OBSERVATORIES  
*Period Obligations*  
 08/14/1989-07/01/1993 FY93: \$6 TOTAL: \$181,706  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J O BURNS JSC/D THOMPSON 11-Astronomy

**NAG 9-557 New Mexico State University - Las Cruces 5745**  
 MODELING OF FRICTIONAL HEATING OF METALS IN GASEOUS OXYGEN  
*Period Obligations*  
 09/25/1991-03/01/1993 FY93: \$6 TOTAL: \$14,994  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 C T SKOWLUND JSC/S H GOLDSTEIN 12-Chemistry

**NAG 9-610 New Mexico State University - Las Cruces 5746**  
 STUDY USE OF WHITE SANDS MISSILE RANGE AS LANDING SITE FOR SPACE CAPSULES  
*Period Obligations*  
 06/16/1992-02/28/1994 FY93: \$570,000 TOTAL: \$920,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 G R PARKER JSC/K HENDERSON 41-Aero Engr  
 B M MCCUNE

**NAGW 110 New Mexico State University - Las Cruces 5747**  
 SUPERCONDUCTING MAGNET SPECTROMETER  
*Period Obligations*  
 08/01/1980-12/31/1993 FY93: \$344,983 TOTAL: \$2,137,813  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R L GOLDEN HQ/M M MELLOTT 11-Astronomy  
 ....//W V JONES

**NAGW 1418 New Mexico State University - Las Cruces 5748**  
 OPERATION OFF NEW MEXICO STATE UNIV BALLOON-BORNE  
*Period Obligations*  
 08/10/1988-12/31/1992 FY93: \$0 TOTAL: \$1,062,472  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R L GOLDEN HQ/M M MELLOTT 13-Physics  
 ....//W V JONES

**NAGW 1506 New Mexico State University - Las Cruces 5749**  
 ANALYSIS OF HIGH RESOLUTION JUPITER VOYAGER DATA  
*Period Obligations*  
 11/14/1988-08/31/1992 FY93: \$0 TOTAL: \$114,002  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R F BEEBE HQ/J T BERGSTALH 11-Astronomy

**NAGW 1592 New Mexico State University - Las Cruces 5750**  
 HIGH LEVEL COGNITIVE INFORMATION PROCESSING  
*Period Obligations*  
 01/05/1989-12/31/1992 FY93: \$0 TOTAL: \$404,217  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J A BARNDEN HQ/J K ALEXANDER 29-Math/Cmputer,NEC  
 ....//D A HOLLAND

**NAGW 1802 New Mexico State University - Las Cruces 5751**  
 LONG TERM CHANGES IN REFLECTIVITY AND LARGE SCALE MOTIONS  
*Period Obligations*  
 07/10/1989-09/30/1993 FY93: \$0 TOTAL: \$238,565  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R REEBE HQ/J RAHE 11-Astronomy

**NAGW 2016 New Mexico State University - Las Cruces 5752**  
 NAGW-2016/NEW MEXICO STATE UNIV/A RESEARCH PROGRAM IN THE AREA OF COSMIC RAY PHYSICS AND RELATED LAB.  
*Period Obligations*  
 04/04/1990-02/28/1994 FY93: \$50,000 TOTAL: \$200,110  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 W R WEBBER HQ/W JONES 13-Physics  
 ....//J C LING

**NAGW 2630 New Mexico State University - Las Cruces 5753**  
 THE RADIAL DISTRIBUTIONS OF FAR INFRARED LUMINOSIT Y IN LARGE SPIRAL GALAXIES  
*Period Obligations*  
 09/16/1991-08/31/1995 FY93: \$185,113 TOTAL: \$289,113  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 N A DEVEREUX HQ/G S KUTTER 11-Astronomy  
 ....//G R RIEGLER

**NAGW 3022 New Mexico State University - Las Cruces 5754**  
 TRANSPORT COLLABORATION  
*Period Obligations*  
 04/03/1992-10/31/1993 FY93: \$50,000 TOTAL: \$100,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 W R WEBBER HQ/W V JONES 13-Physics  
 ....//J D BOHLIN

**NAGW 3152 New Mexico State University - Las Cruces 5755**  
 STUDIES OF ASTROPHYSICAL PLASMAS IN CLUSTERS OF GALAXES  
*Period Obligations*  
 07/23/1992-06/30/1994 FY93: \$112,402 TOTAL: \$262,751  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J BURNS HQ/G R RIEGLER 11-Astronomy



**NASA'S UNIVERSITY PROGRAM  
NEW MEXICO (Continued)**

**NAGW 3236 New Mexico State University - Las Cruces 5756**  
NAGW-3236/NEW MEXICO STATE UNIV/A SUMMER ASTRONOMY WORKSHOP TARGETING TEACHERS OF MINORITY ELEMENTAR

Period	Obligations	
11/02/1992-07/31/1993	FY93: \$3,700	TOTAL: \$3,700
Prin. Invest.	NASA Tech. Officer	CASE Category
B J MCNAMARA	HQ/L LAPIANA	11-Astronomy
	....G P NEWTON	

**NAGW 3264 New Mexico State University - Las Cruces 5757**  
NAGW-3264/NEW MEXICO STATE UNIV LAS CRU/ASTRONOMY WORKSHOPS FOR TEACHES IN SOUTHERN NEW MEXICO

Period	Obligations	
10/29/1992-01/31/1994	FY93: \$5,000	TOTAL: \$5,000
Prin. Invest.	NASA Tech. Officer	CASE Category
P J BURNS	HQ/L S LAPIANA	11-Astronomy
	....G P NEWTON	

**NAS 5-29800 New Mexico State University - Las Cruces 5758**  
OPERATION AND MAINT NATL SCIENTIFIC SALLOON FACILITY AND ENGINEERING SUPPORT FOR THE NASA BALLOON PROGRA

Period	Obligations	
10/01/1987-09/30/1992	FY93: \$414,803	TOTAL: \$66,659,999
Prin. Invest.	NASA Tech. Officer	CASE Category
J E HALLIGAN	GSFC/R S NOCK	39-Env Sci, NEC
	....H C NEEDLEMAN	

**NAS 5-30105 New Mexico State University - Las Cruces 5759**  
ENGINEERING SUPPORT SERVICES FORO SHUTTLE SOLAR BACKSCATTER ULTRAVIOLET (SSBUV) EXPERIMENT

Period	Obligations	
04/24/1987-06/01/1993	FY93: \$42,165	TOTAL: \$336,729
Prin. Invest.	NASA Tech. Officer	CASE Category
UNAVAILABLE	GSFC/D WILLIAMS	41-Aero Engr

**NAS 5-30749 New Mexico State University - Las Cruces 5760**  
SUPPORT SERVICE FOR ULTRAVIOLET IMAGING TELESCOPE

Period	Obligations	
12/20/1989-12/19/1994	FY93: \$0	TOTAL: \$100,000
Prin. Invest.	NASA Tech. Officer	CASE Category
F KUELLMER	GSFC/A BLUM	11-Astronomy

**NAS 5-31125 New Mexico State University - Las Cruces 5761**  
O/M OF NATIONAL SCIENTIFIC BALLOON FACILITY AND ENGINEERING SUPPORT FOR NASA BALLOON PROGRAM

Period	Obligations	
09/14/1992-09/30/1997	FY93: \$16,570,938	TOTAL: \$16,570,938
Prin. Invest.	NASA Tech. Officer	CASE Category
J E HALLIGAN	GSFC/R S NOCK	39-Env Sci, NEC
	....H C NEEDLEMAN	

**NAS 5-31274 New Mexico State University - Las Cruces 5762**  
PRELIMINARY PHASE B DEFINITION STUDY OF WIZARD INSTR.

Period	Obligations	
09/21/1990-04/28/1992	FY93: \$0	TOTAL: \$232,284
Prin. Invest.	NASA Tech. Officer	CASE Category
R GOLDEN	GSFC/J LAUDADIO	19-Phys Sci, NEC

**NAS 5-31688 New Mexico State University - Las Cruces 5763**  
SOUNDING ROCKET ENGINEERING SUPPORT

Period	Obligations	
04/11/1990-04/30/1994	FY93: \$1,820,668	TOTAL: \$8,380,284
Prin. Invest.	NASA Tech. Officer	CASE Category
K LANE	WFF/W W WEST	41-Aero Engr
	....W R POWELL	

**NAS 5-31852 New Mexico State University - Las Cruces 5764**  
POST-EXPERIMENT SERVICES FOR IMAX BALLOON FLIGHT D

Period	Obligations	
10/06/1992-10/05/1993	FY93: \$27,038	TOTAL: \$27,038
Prin. Invest.	NASA Tech. Officer	CASE Category
R L GOLDEN	GSFC/R E STREITMATTER	11-Astronomy

**NCA 2-793 New Mexico State University - Las Cruces 5765**  
THERMAL STRUCTURE OF NEPTUNE'S ATMOSPHERE

Period	Obligations	
02/16/1993-11/30/1993	FY93: \$9,499	TOTAL: \$9,499
Prin. Invest.	NASA Tech. Officer	CASE Category
M S MARLEY	ARC/J B POLLACK	31-Atmos Sci

**NGL32-3001 New Mexico State University - Las Cruces 5766**  
PHOTOGRAPHIC PATROL AND STUDY OF PHYSICAL CONDITIONS ON THE MOON AND PLANETS

Period	Obligations	
04/15/1961-10/22/1992	FY93: \$2,308	TOTAL: \$2,437,776
Prin. Invest.	NASA Tech. Officer	CASE Category
R F BEEBE	HQ/H C BRINTON	11-Astronomy
J M VAN AKEN	....J H RAHE	

**NGT 00-040-019 New Mexico State University - Las Cruces 5767**  
NATIONAL SPACE GRANT COLLEGE AND FELLOWSHIP PROGRA M

Period	Obligations	
03/12/1990-01/31/1994	FY93: \$392,850	TOTAL: \$1,337,850
Prin. Invest.	NASA Tech. Officer	CASE Category
S HORAN	HQ/E T SCHWARTZ	99-Multi-Discip

**NGT 00-050-898 New Mexico State University - Las Cruces 5768**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM

Period	Obligations	
08/20/1992-08/16/1994	FY93: \$22,000	TOTAL: \$44,000
Prin. Invest.	NASA Tech. Officer	CASE Category
W P OSBORNE	GSFC/G SOFFEN	45-Elec Engr

**NGT 00-070-114 New Mexico State University - Las Cruces 5769**  
NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED MINORITY FOCUS PROGRAM

Period	Obligations	
01/10/1989-12/31/1992	FY93: \$0	TOTAL: \$62,000
Prin. Invest.	NASA Tech. Officer	CASE Category
R B JACQUEZ	HQ/F C OWENS	44-Civil Engr

**NASA'S UNIVERSITY PROGRAM**  
**NEW MEXICO (Continued)**

**NGT 00-070-187 New Mexico State University - Las Cruces 5770**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED MINORITY FOCUS PROGRAM  

Period	Obligations	
07/24/1990-06/30/1992	FY93: \$1,099	TOTAL: \$42,901
Prin. Invest.	NASA Tech. Officer	CASE Category
R D COLBAUGH	HQ/F C OWENS	46-Mech Engr

**NGT 00-070-288 New Mexico State University - Las Cruces 5771**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED MINORITY FOCUS PROGRAM  

Period	Obligations	
08/18/1992-06/30/1994	FY93: \$22,000	TOTAL: \$44,000
Prin. Invest.	NASA Tech. Officer	CASE Category
R D COLBAUGH	JPL/H ASKHENAS	46-Mech Engr

**NGT 00-070-341 New Mexico State University - Las Cruces 5772**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED MINORITY FOCUS PROGRAM  

Period	Obligations	
06/30/1993-06/30/1994	FY93: \$22,000	TOTAL: \$22,000
Prin. Invest.	NASA Tech. Officer	CASE Category
V GHOO	HQ/D RUSSELL	79-Soc Sci, NEC

**NGT 00-090-114 New Mexico State University - Las Cruces 5773**  
 UNDERGRADUATE STUDENT RESEARCHERS PROGRAM  

Period	Obligations	
09/17/1992-08/14/1994	FY93: \$12,000	TOTAL: \$24,000
Prin. Invest.	NASA Tech. Officer	CASE Category
P HYNES	HQ/D K RUSSELL	99-Multi-Discip

**NGT 00-090-115 New Mexico State University - Las Cruces 5774**  
 UNDERGRADUATE STUDENT RESEARCHERS PROGRAM (UNF)  

Period	Obligations	
09/23/1992-08/14/1994	FY93: \$12,000	TOTAL: \$24,000
Prin. Invest.	NASA Tech. Officer	CASE Category
P HYNES	HQ/D K RUSSELL	99-Multi-Discip

**NGT 00-090-161 New Mexico State University - Las Cruces 5775**  
 UNDERGRADUATE STUDENT RESEARCHERS PROGRAM  

Period	Obligations	
08/26/1993-08/14/1994	FY93: \$60,000	TOTAL: \$60,000
Prin. Invest.	NASA Tech. Officer	CASE Category
P HYNES	HQ/D K RUSSELL	99-Multi-Discip

**NAG 5-2285 University of Albuquerque 5776**  
 HIGH CONSTRAINT LENGTH VITERBI DECODER  

Period	Obligations	
06/10/1993-12/14/1993	FY93: \$50,000	TOTAL: \$50,000
Prin. Invest.	NASA Tech. Officer	CASE Category
K CAMERON	GSFC/W H MILLER	49-Engr, NEC
	....J C MORAKIS	

**NAG 3-941 University of New Mexico 5777**  
 TRANSIENT BEHAVIOR OF HEAT PIPES, INCLUDING START UP FROM A FROZEN STATE W/ APPL TO NASA CONCERNS  

Period	Obligations	
12/08/1988-04/07/1994	FY93: \$25,000	TOTAL: \$246,093
Prin. Invest.	NASA Tech. Officer	CASE Category
M ELGENK	LERC/A J JUHASZ	46-Mech Engr
	....K W BAKER	

**NAG 3-1346 University of New Mexico 5778**  
 HYDROGEN COMPATIBILITY STUDIES OF SOLID CORE NUCLE AR THERMAL PROPULSION REACTORS AND SUPPORTING SYS A  

Period	Obligations	
04/14/1992-09/30/1994	FY93: \$26,000	TOTAL: \$51,999
Prin. Invest.	NASA Tech. Officer	CASE Category
M S EL-GENK	LERC/K M PEECOOK	49-Engr, NEC
D G PEL ACCIO	....J R STONE	

**NAG 5-1239 University of New Mexico 5779**  
 MULTI-WAVELENGTH STUDIES FORMATION IN IRAS OBSERVED  

Period	Obligations	
07/27/1989-09/30/1993	FY93: \$0	TOTAL: \$116,000
Prin. Invest.	NASA Tech. Officer	CASE Category
N DURIC	GSFC/D WEST	11-Astronomy

**NAG 5-1814 University of New Mexico 5780**  
 PSPC OBSERVATIONS OF CLUSTERS WITH WIDE-ANGLE TAIL ED RADIO GLAXIES AND ROSAT PSPC OBSERV. OF POOR.  

Period	Obligations	
09/23/1991-09/30/1992	FY93: \$0	TOTAL: \$5,000
Prin. Invest.	NASA Tech. Officer	CASE Category
N DURIC	GSFC/R PETRE	11-Astronomy

**NAG 5-1828 University of New Mexico 5781**  
 RELATIONSHIPS BETWEEN SOIL HYDROLOGY/SOIL GEOMORPH IC PROCESSES AND ENVIRONMENTAL CHANGES. . . .  

Period	Obligations	
12/10/1991-05/31/1994	FY93: \$0	TOTAL: \$73,500
Prin. Invest.	NASA Tech. Officer	CASE Category
L D MCFADDEN	GSFC/L S WALTER	32-Geological Sci
E MCDONALD		

**NAG 5-1833 University of New Mexico 5782**  
 WIND EROSION IN SEMIARID LANDSCAPES: PREDICTIVE M ODELS AND REMOTE SENSING METHODS FOR THE INFLUENC  

Period	Obligations	
12/02/1991-05/31/1993	FY93: \$0	TOTAL: \$112,500
Prin. Invest.	NASA Tech. Officer	CASE Category
H B MUSICK	GSFC/L S WALTER	32-Geological Sci
C R TRUMAN		

**NAG 5-1923 University of New Mexico 5783**  
 ROSAT HRI OBSERVATIONS OF A NEW GALACTIC JET SOURC E  

Period	Obligations	
03/04/1992-03/14/1993	FY93: \$0	TOTAL: \$16,246
Prin. Invest.	NASA Tech. Officer	CASE Category
N DURIC	GSFC/R PETRE	11-Astronomy

**NASA'S UNIVERSITY PROGRAM  
NEW MEXICO (Continued)**

**NAG 5-2166 University of New Mexico 5784**  
ADVANCED SPACE QUALIFIED LOSSLESS DATA COMPRESSION VLSI  
*Period* *Obligations*  
12/30/1992-12/31/1993 FY93: \$130,000 TOTAL: \$130,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J VENBRUX GSFC/P YEH 49-Engr, NEC  
...../W H MILLER

**NAG 5-2190 University of New Mexico 5785**  
HIGH PERFORMANCE LOSSY DATA COMPRESSION SYSTEM  
*Period* *Obligations*  
01/21/1993-01/14/1994 FY93: \$99,890 TOTAL: \$99,890  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
K CAMERON GSFC/P YEH 49-Engr, NEC  
...../W H MILLER

**NAG 5-2191 University of New Mexico 5786**  
SPACE QUALIFIED REED SOLOMON ENCODER/DECODER VLSI  
*Period* *Obligations*  
01/26/1993-01/31/1994 FY93: \$299,580 TOTAL: \$299,580  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
S WHITAKER GSFC/W H MILLER 49-Engr, NEC  
G MAKI ...../D A DALTON

**NAG 5-2204 University of New Mexico 5787**  
SEU HARD VLSI ELECTRONICS  
*Period* *Obligations*  
02/09/1993-02/14/1993 FY93: \$146,760 TOTAL: \$146,760  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
S WHITAKER GSFC/W H MILLER 49-Engr, NEC  
G K MAKI ...../J C MORAKIS

**NAG 5-2263 University of New Mexico 5788**  
RADIATION TESTING AND EVALUATION OF LOSSLESS DATA COMPRESSION  
*Period* *Obligations*  
05/04/1993-05/14/1994 FY93: \$154,150 TOTAL: \$154,150  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J VENBRUX GSFC/W H MILLER 49-Engr, NEC  
...../P S YEH

**NAG 8-894 University of New Mexico 5789**  
LUNAR DUST MITIGATION EFFECTS ON TELESCOPE MIRRORS  
*Period* *Obligations*  
10/23/1991-10/27/1992 FY93: \$0 TOTAL: \$25,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
K M CHUA MSFC/M E NEIN 11-Astronomy

**NAG 8-933 University of New Mexico 5790**  
POTENTIAL EFFECTS OF DUST AND TEMPERATURE ON TELESCOPE MIRRORS  
*Period* *Obligations*  
09/29/1992-10/04/1993 FY93: \$10,000 TOTAL: \$10,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
K M CHUA MSFC/M E NEIN 42-Astro Engr  
S W JOHNSON

**NAG 8-940 University of New Mexico 5791**  
DEFINITION OF THE LUNAR TRANSIT TELESCOPE  
*Period* *Obligations*  
10/21/1992-04/30/1994 FY93: \$63,000 TOTAL: \$63,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J T MCGRAW MSFC/M E NEIN 42-Astro Engr

**NAG 9-160 University of New Mexico 5792**  
ANALYTICAL ELECTRON MICROSCOPY  
*Period* *Obligations*  
04/01/1986-04/01/1993 FY93: \$0 TOTAL: \$588,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
F J RIETMEIJER JSC/I D BROWNE 32-Geological Sci

**NAG 9-401 University of New Mexico 5793**  
GLYCEROL-INDUCED HYPERHYDRATION  
*Period* *Obligations*  
10/01/1989-01/01/1994 FY93: \$0 TOTAL: \$217,052  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
M L RIEDESEL JSC/S M FORTNEY 56-Medical Sciences

**NAG 9-497 University of New Mexico 5794**  
MICROBEAM STUDIES OF PLANETARY MATERIALS  
*Period* *Obligations*  
03/01/1991-03/01/1993 FY93: \$0 TOTAL: \$319,082  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J J PAPIKE JSC/I D BROWNE 19-Phys Sci, NEC

**NAGW 1468 University of New Mexico 5795**  
A STUDY OF BASIC PROBLEMS IN SOLAR AND HELIOSPHERIC PHYSICS  
*Period* *Obligations*  
10/03/1988-01/31/1994 FY93: \$9,998 TOTAL: \$329,426  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
H S AHLUWALIA HQ/J D BOHLIN 19-Phys Sci, NEC

**NAGW 2530 University of New Mexico 5796**  
INTERFEROMETRIC IMAGING WITH SPACE-BASED SYNTHESIS ARRAYS AT OPTICAL AND INFRARED WAVELENGTHS  
*Period* *Obligations*  
06/11/1991-12/31/1993 FY93: \$0 TOTAL: \$96,262  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
S PRASUD HQ/D P HUENEMOERDER 99-Multi-Discip

**NAGW 3293 University of New Mexico 5797**  
NAGW-3293/UNIV NEW MEXICO/NASA SPACE ENGINEERING RESEARCH CENTER FOR VLSI SYSTEMS DESIGN  
*Period* *Obligations*  
11/27/1992-12/31/1993 FY93: \$1,630,000 TOTAL: \$1,630,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
G MAKI HQ/R J HAYDUK 29-Math/Cmputer, NEC  
...../P H SMITH

**NAGW 3347 University of New Mexico 5798**  
MICROBEAM STUDIES OF PLANETARY MATERIALS  
*Period* *Obligations*  
01/13/1993-12/14/1993 FY93: \$196,730 TOTAL: \$196,730  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J J PAPIKE HQ/H C BRINTON 32-Geological Sci

**NAGW 3626 University of New Mexico 5799**  
LAYER SILICATES AND CARBONACEOUS MATERIALS IN CHON DRITE INTERPLANETARY DUST  
*Period* *Obligations*  
06/02/1993-03/31/1994 FY93: \$82,400 TOTAL: \$82,400  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
F RIETMEIJER HQ/J BOYCE 32-Geological Sci

# NASA'S UNIVERSITY PROGRAM

## NEW MEXICO (Continued)

**NAGW 3646**                      **University of New Mexico**                      **5800**  
 PETROLOGICAL ANALYSIS OF ASTROPHYSICAL DUST ANALOG  
 EVOLUTION  
*Period*    *Obligations*  
 08/06/1993-02/28/1994                      FY93: \$38,388                      TOTAL: \$38,388  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 F J RIETMEIJER                      HQ/J A NUTH III                      19-Phys Sci, NEC

**NASW 4191**                      **University of New Mexico**                      **5801**  
 OPERATION OF TECHNOLOGY APPLICATIONS CENTER  
*Period*    *Obligations*  
 07/01/1986-09/30/1991                      FY93: \$0                      TOTAL: \$1,908,971  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 S A MORAIN                      HQ/R BIVINS                      99-Multi-Discip

**NASW 4683**                      **University of New Mexico**                      **5802**  
 NASW-4683/UNIV NEW MEXICO/OPERATION OF TECHNOLOGY  
 APPLICATION CENTER  
*Period*    *Obligations*  
 05/01/1992-12/31/1993                      FY93: \$441,640                      TOTAL: \$441,640  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 T M BUDGE                      HQ/A KAHN                      39-Env Sci, NEC  
 S MORAN

**NGR32-4062**                      **University of New Mexico**                      **5803**  
 SEARCH FOR EVIDENCE OF DYNAMIC PROCESS \$5,260  
*Period*    *Obligations*  
 06/22/1970-06/30/1992                      FY93: \$0                      TOTAL: \$578,371  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 W E ELSTON                      HQ/J UNDERWOOD                      32-Geological Sci  
 ....J M BOYCE

**NGT 00-050-584**                      **University of New Mexico**                      **5804**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period*    *Obligations*  
 07/26/1990-06/30/1993                      FY93: \$22,000                      TOTAL: \$44,000  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 J R MCNEIL                      HQ/F C OWENS                      45-Elec Engr

**NGT 00-070-223**                      **University of New Mexico**                      **5805**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
 MINORITY FOCUS PROGRAM  
*Period*    *Obligations*  
 06/25/1991-07/31/1994                      FY93: \$22,000                      TOTAL: \$66,000  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 J J PAPIKE                      HQ/F C OWENS                      32-Geological Sci

**NGT 00-070-329**                      **University of New Mexico**                      **5806**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
 MINORITY FOCUS PROGRAM  
*Period*    *Obligations*  
 07/01/1993-06/30/1994                      FY93: \$21,915                      TOTAL: \$21,915  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 D WOLFE                      HQ/D K RUSSELL                      13-Physics

**NGT 00-090-052**                      **University of New Mexico**                      **5807**  
 UNDERGRADUATE RESEARCHER PROGRAM FOR ENGINEERING P  
 HYSICAL SCIENCES AAND MATHEMATICS  
*Period*    *Obligations*  
 08/23/1991-08/31/1994                      FY93: \$67,805                      TOTAL: \$307,193  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 M LEE                      HQ/B WHITE                      49-Engr, NEC

**NGT 00-090-221**                      **University of New Mexico**                      **5808**  
 UNDERGRADUATE STUDENT RESEARCHERS (UMF) PROGRAM  
*Period*    *Obligations*  
 09/14/1993-08/14/1994                      FY93: \$12,000                      TOTAL: \$12,000  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 M LEE                      HQ/D K RUSSELL                      99-Multi-Discip

**NGT32-4770**                      **University of New Mexico**                      **5809**  
 THE TRAINING OF 12 STUDENTS IN A PRE-COOPERATIVE  
 EDUCATION PROGRAM  
*Period*    *Obligations*  
 06/25/1977-05/31/1994                      FY93: \$411,589                      TOTAL: \$1,864,060  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 M LEE                      HQ/O A GUTIERREZ                      49-Engr, NEC

## NEW YORK

**NAGW 1704**                      **Brooklyn College**                      **5810**  
 DEVELOPMENT MATURATION AND PHYSIOLOGY OF THE  
 BRAIN-PITUITARY  
*Period*    *Obligations*  
 03/03/1989-01/31/1994                      FY93: \$50,000                      TOTAL: \$249,996  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 M P SCHREIBMAN                      HQ/T W HALSTEAD                      51-Biological Sci

**NAG 1-377**                      **City College of New York**                      **5811**  
 THE MEASUREMENT OF REYNOLDS STRESSES IN TURBULENT  
 COMPRESSIBLE FLOW  
*Period*    *Obligations*  
 05/27/1983-03/31/1992                      FY93: \$0                      TOTAL: \$1,550,001  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 J A JOHNSON III                      LARC/D M BUDHNELL                      41-Aero Engr  
 ....J B ANDERS

**NAG 1-1159**                      **City College of New York**                      **5812**  
 COMPUTATION OF UNSTEADY BOUNDARY LAYERS, CALCULA- TION  
 AND STABILITY OF SUPERSONIC WAKES.  
*Period*    *Obligations*  
 06/19/1990-03/31/1994                      FY93: \$76,111                      TOTAL: \$212,581  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 A ACRIVOS                      LARC/M G MACARAEG                      41-Aero Engr  
 D PAPAGEORGIOU                      ....A KUMAR

**NAG 1-1346**                      **City College of New York**                      **5813**  
 TETRAVALENT CHROMIUM (CR4+) AS A LASER-ACTIVE ION FOR  
 TUNABLE SOLID-STATE LASERS  
*Period*    *Obligations*  
 09/24/1991-09/17/1993                      FY93: \$0                      TOTAL: \$38,280  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 R R ALFANO                      LARC/N P BARNES                      13-Physics  
 ....L R MCMASTER

**NASA'S UNIVERSITY PROGRAM  
NEW YORK (Continued)**

**NAG 3-1167 City College of New York 5814**  
MOLECULAR DYNAMICS OF A FLUID-SOLID SYSTEM  
*Period Obligations*  
05/07/1990-12/31/1993 FY93: \$125,000 TOTAL: \$425,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J KOPLIK LERC/R W VERNON 13-Physics  
J R BANEVAR

**NAG 3-1490 City College of New York 5815**  
INVESTIGATION OF THE BASIC PHYSICS OF HIGH EFFICIE NCY SEMICONDUCTOR HOT CARRIER SOLAR CELLS  
*Period Obligations*  
04/21/1993-04/30/1994 FY93: \$155,220 TOTAL: \$155,220  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R R ALFANO LERC/B S GOOD 45-Elec Engr  
...../L WEINBERG

**NAG 8-261 City College of New York 5816**  
JOVE  
*Period Obligations*  
12/08/1992-05/30/1994 FY93: \$47,000 TOTAL: \$47,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
G G GOSS MSFC/F SIX 99-Multi-Discip

**NCA 2-695 City College of New York 5817**  
EARLY EVOLUTION OF PLANET-FORMING DISKS  
*Period Obligations*  
03/20/1992-03/31/1994 FY93: \$11,416 TOTAL: \$22,414  
*Prin. Invest. NASA Tech. Officer CASE Category*  
C YUAN ARC/P CASSEN 11-Astronomy

**NGT 00-070-098 City College of New York 5818**  
NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED MINORITY FOCUS PROGRAM  
*Period Obligations*  
09/26/1988-06/30/1992 FY93: \$7,609 TOTAL: \$46,629  
*Prin. Invest. NASA Tech. Officer CASE Category*  
W J PIERSON HQ/F C OWENS 13-Physics

**NGT 00-090-056 City College of New York 5819**  
UNDERGRADUATE STUDENT RESEARCHERS PRG  
*Period Obligations*  
10/28/1991-08/31/1993 FY93: \$0 TOTAL: \$27,925  
*Prin. Invest. NASA Tech. Officer CASE Category*  
C WATKINS HQ/B WHITE 99-Multi-Discip  
A BROWN  
C MORNING

**NAGW 690 City University of New York System 5820**  
REMOTE SENSING RESEARCH ON RADAR  
*Period Obligations*  
12/01/1984-11/30/1993 FY93: \$132,000 TOTAL: \$1,113,979  
*Prin. Invest. NASA Tech. Officer CASE Category*  
W J PIERSON HQ/G S LAGERLOEF 33-Oceanography  
...../W S WILSON

**NAG 5-2291 City University of Ny - Staten Island 5821**  
AN AI SYSTEM TO AID IN SUBMITTING SOFTWARE TO THE SOFTWARE UNION CATALOGUE  
*Period Obligations*  
07/22/1993-08/14/1994 FY93: \$40,000 TOTAL: \$40,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
M TAUSNER GSFC/B JACOBS 22-Computer Science

**NAG 1-1481 Clarkson University 5822**  
THEORETICAL AND EXPERIMENTAL STUDIES IN AEROSPACE SCIENCES NLPN 92-1002  
*Period Obligations*  
01/28/1993-01/27/1994 FY93: \$44,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
M N LARC/S O KJELGAARD 41-Aero Engr  
G AHMADI  
G LEE-GLAUSER

**NAG 2-724 Clarkson University 5823**  
INSTRUMENTATION DEVELOPMENT FOR MULTIPOINT MEASUR EMENTS  
*Period Obligations*  
07/24/1991-07/31/1994 FY93: \$70,000 TOTAL: \$154,369  
*Prin. Invest. NASA Tech. Officer CASE Category*  
M N GLAUSER ARC/E M HAMLIN 41-Aero Engr  
...../R G BOGUE

**NAG 3-1089 Clarkson University 5824**  
3-D SHAPE OPT UTIL THE BOUNDARY ELEMENT METH  
*Period Obligations*  
10/25/1989-11/30/1993 FY93: \$0 TOTAL: \$184,815  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J H KANE LERC/D A HOPKINS 49-Engr, NEC

**NAG 3-1101 Clarkson University 5825**  
PROGRESSIVE DAMAGE AND FRACTURE IN COMPOSITES UNDE R DYNAMIC LOADING  
*Period Obligations*  
12/05/1989-03/21/1994 FY93: \$60,000 TOTAL: \$172,442  
*Prin. Invest. NASA Tech. Officer CASE Category*  
L MINNETYAN LERC/P L MURTHY 49-Engr, NEC  
...../C C CHAMIS

**NAG 3-1122 Clarkson University 5826**  
THERMOCAPILLARY MIGRATION AND INTERACTIONS OF BUBBLE AND DROPS  
*Period Obligations*  
01/10/1990-12/31/1993 FY93: \$215,000 TOTAL: \$635,490  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R S SUBRAMANIAN LERC/M E HILL 19-Phys Sci, NEC

**NAG 3-1470 Clarkson University 5827**  
INTERACTIONS OF BUBBLES AND DROPS IN A TEMPERATURE G RADIANT  
*Period Obligations*  
03/04/1993-03/01/1994 FY93: \$50,000 TOTAL: \$50,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R S SUBRAMANIAN LERC/R L THOMPSON 43-Chem Engr

**NAG 5-1809 Clarkson University 5828**  
RAPID THERMAL PROCESSING OF SEMICONDUCTORS IN SPAC E  
*Period Obligations*  
09/19/1991-05/31/1993 FY93: \$61,944 TOTAL: \$128,944  
*Prin. Invest. NASA Tech. Officer CASE Category*  
W R WILCOX GSFC/L R PURVES 47-Materials Engr

**NASA'S UNIVERSITY PROGRAM**  
**NEW YORK (Continued)**

**NAG 8-753** **Clarkson University** **5829**  
 INFLUENCE OF CONVECTION ON MICROSTRUCTURES.  
*Period* *Obligations*  
 08/15/1988-08/16/1994 FY93: \$0 TOTAL: \$339,627  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 W R WILCOX MSFC/F R SZOFRAN 13-Physics  
 ....S D COBB

**NAG 8-831** **Clarkson University** **5830**  
 MODELING DIRECTIONAL SOLIDIFICATION  
*Period* *Obligations*  
 05/10/1990-05/20/1994 FY93: \$0 TOTAL: \$315,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 W R WILCOX MSFC/F R SZOFRAN 19-Phys Sci, NEC  
 ....G PERRY

**NAGW 976** **Clarkson University** **5831**  
 THREE (3) MONTHS NOE UNDER ELIMINATION CLAUSE  
*Period* *Obligations*  
 09/01/1986-10/31/1993 FY93: \$1,460,123 TOTAL: \$8,035,123  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 W R WILCOX HQ/W ORAN 51-Biological Sci  
 B HOEKSTRA ....R P WHITTEN

**NAGW 3471** **Clarkson University** **5832**  
 FIRST INTERNATIONAL WORKSHOP ON G-JITTER  
*Period* *Obligations*  
 04/14/1993-02/28/1994 FY93: \$20,000 TOTAL: \$20,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 L L REGAL HQ/G L MARTIN 13-Physics

**NGT 00-050-674** **Clarkson University** **5833**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period* *Obligations*  
 08/17/1990-07/31/1993 FY93: \$0 TOTAL: \$66,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 F M CARLSON HQ/F C OWENS 46-Mech Engr

**NGT 00-050-825** **Clarkson University** **5834**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period* *Obligations*  
 08/12/1991-08/31/1994 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 G AHMADI HQ/F C OWENS 41-Aero Engr

**NGT 00-050-839** **Clarkson University** **5835**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period* *Obligations*  
 09/16/1991-06/30/1993 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 M GLAUSER HQ/F C OWENS 46-Mech Engr

**NGT 00-051-130** **Clarkson University** **5836**  
 GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period* *Obligations*  
 09/02/1993-09/19/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 G AHMADI MSFC/B SWINFORD 46-Mech Engr

**NGT 00-051-142** **Clarkson University** **5837**  
 GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period* *Obligations*  
 07/19/1993-08/31/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 S P LIN HQ/R WHITE 46-Mech Engr

**NGT 00-070-167** **Clarkson University** **5838**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
 MINORITY FOCUS PROGRAM  
*Period* *Obligations*  
 07/25/1990-08/26/1993 FY93: \$0 TOTAL: \$66,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 W R WILCOX HQ/F C OWENS 22-Computer Science

**NAG 1-649** **Columbia University** **5839**  
 NONLINEAR LARGE ANGLE MANEUVERS OF FLEXIBLE SPACE  
 STRUCTURES  
*Period* *Obligations*  
 03/04/1986-10/31/1993 FY93: \$91,800 TOTAL: \$629,664  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 R W LONGMAN LARC/J N JUANG 42-Astro Engr  
 ....W K BELVIN

**NAG 5-618** **Columbia University** **5840**  
 X-RAY ASTRONOMY  
*Period* *Obligations*  
 02/01/1983-10/31/1993 FY93: \$670,000 TOTAL: \$7,385,857  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 R NOVICK GSFC/L J EARLY 13-Physics  
 W H-M KU ....R H PLESS  
 M VARTANIAN

**NAG 5-642** **Columbia University** **5841**  
 HIGH EMISSION LINE SPECTROSCOPY  
*Period* *Obligations*  
 04/01/1987-10/31/1993 FY93: \$400,000 TOTAL: \$1,936,952  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 C MARTIN GSFC/L J EARLY 13-Physics  
 ....R H PLESS

**NAG 5-1557** **Columbia University** **5842**  
 THE X-RAY POPULATION IN GLOBULAR CLUSTERS; THREE  
 CRAB-LIKE SNR IN THE LARGE MAGELLANIC CLOUD  
*Period* *Obligations*  
 05/09/1991-05/31/1993 FY93: \$0 TOTAL: \$25,400  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 D J HELFAND GSFC/R PETRE 11-Astronomy

**NAG 5-1598** **Columbia University** **5843**  
 WZ SAGITTAE: A PULSATING 'LITTLE DIPPER' SOURCE  
*Period* *Obligations*  
 05/09/1991-05/31/1993 FY93: \$0 TOTAL: \$63,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 J PATTERSON GSFC/R PETRE 11-Astronomy

**NASA'S UNIVERSITY PROGRAM  
NEW YORK (Continued)**

**NAG 5-1606 Columbia University 5844**  
IMAGING THE NEARBY SEYFERT 2 GALAXY NGC 1068;INTER  
MEDIATE TYPE SEYFERT GALAXIES;SPECTRUM AND VARIABI.  
*Period Obligations*  
05/09/1991-12/31/1992 FY93: \$0 TOTAL: \$66,500  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J P HALPERN GSFC/R PETRE 11-Astronomy

**NAG 5-1958 Columbia University 5851**  
1) NEW X-RAY PULSAR CANDIDATES FROM HEAD-1 2) DEEP  
ECLIPSES IN H0928+501  
*Period Obligations*  
03/30/1992-04/14/1994 FY93: \$50,000 TOTAL: \$70,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J O PATTERSON GSFC/R PETRE 11-Astronomy

**NAG 5-1808 Columbia University 5845**  
IUE OBSERVATIONS OF A NEW PLANETARY NEBULAE CENTRA L  
STAR CANDIDATE  
*Period Obligations*  
09/23/1991-09/30/1992 FY93: \$0 TOTAL: \$8,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R M RICH GSFC/D WEST 11-Astronomy

**NAG 5-1960 Columbia University 5852**  
FOUR-DIMENSIONAL OCEANIC AND ATMOSPHERIC DATA ASSI  
MILATION WITH THE TRMM DATA  
*Period Obligations*  
04/03/1992-04/14/1994 FY93: \$70,000 TOTAL: \$170,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
K TAKANO GSFC/O W THIELE 31-Atmos Sci

**NAG 5-1912 Columbia University 5846**  
A DEEP LUMINOSITY-LIMITED SAMPLE OF THE X-RAY POPU LATIONS  
IN M31  
*Period Obligations*  
02/24/1992-02/28/1994 FY93: \$20,000 TOTAL: \$70,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D J HELEAND GSFC/R PETRE 11-Astronomy

**NAG 5-2016 Columbia University 5853**  
RED-SHIFTED ELECTRON-POSITRON ANNIHILATION GAMMA-R AYS  
FROM RADIOPULSARS  
*Period Obligations*  
07/15/1992-07/14/1994 FY93: \$28,500 TOTAL: \$47,500  
*Prin. Invest. NASA Tech. Officer CASE Category*  
M A RUDERMAN GSFC/J P NORRIS 11-Astronomy  
...../N WHITE

**NAG 5-1935 Columbia University 5847**  
SEYFERT 1.8 AND 1.9 GLAXIES (509)  
*Period Obligations*  
04/07/1992-09/14/1993 FY93: \$70,000 TOTAL: \$85,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J P HALPERN GSFC/R PETRE 11-Astronomy

**NAG 5-2017 Columbia University 5854**  
BLACK HOLE MODELS FOR GAMMA-RAY BURSTS  
*Period Obligations*  
07/15/1992-07/14/1994 FY93: \$24,000 TOTAL: \$40,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J SHAHAM GSFC/J P NORRIS 11-Astronomy  
...../N WHITE

**NAG 5-1948 Columbia University 5848**  
DEFORMATION IN ALASKA: (1) ANAL., OF GPS REOCCUPA TION  
OF ALASKAN VLBI SITES (2) SUBDUCTION, . . .  
*Period Obligations*  
03/18/1992-03/31/1994 FY93: \$45,000 TOTAL: \$95,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J BEAVAN GSFC/B G BILLS 32-Geological Sci

**NAG 5-2051 Columbia University 5855**  
MULTIWAVELENGTH OBSERVATIONS OF UNIDENTIFIED HIGH-  
ENERGY GAMMA-RAY SOURCES  
*Period Obligations*  
07/28/1992-10/14/1993 FY93: \$45,000 TOTAL: \$75,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J P HALPERN GSFC/J P NORRIS 11-Astronomy  
...../N WHITE

**NAG 5-1949 Columbia University 5849**  
KINEMATICS OF THE NEW ZEALAND PLATE BOUNDARY: REL ATIVE  
MOTION BY GPS ACROSS NETWORKS . . . . .  
*Period Obligations*  
03/18/1992-03/31/1994 FY93: \$35,000 TOTAL: \$67,500  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J BEAVAN GSFC/B G BILLS 32-Geological Sci

**NAG 5-2058 Columbia University 5856**  
IES SUPPLEMENT TO OPEN-OCEAN VALIDATION OF TOPEX/P  
OSEIDON SEA LEVEL  
*Period Obligations*  
08/05/1992-08/14/1994 FY93: \$70,000 TOTAL: \$124,861  
*Prin. Invest. NASA Tech. Officer CASE Category*  
E J KATZ GSFC/A J BUSALACCHI 33-Oceanography

**NAG 5-1954 Columbia University 5850**  
AN X-RAY SURVEY OF COMPACT GROUPS  
*Period Obligations*  
03/26/1992-03/31/1993 FY93: \$5,930 TOTAL: \$20,930  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J H VAN GORKOM GSFC/R PETRE 11-Astronomy

**NAG 5-2079 Columbia University 5857**  
DUST CONTENT OF A HYDROGEN RICH, LOW SURFACE BRIGH  
TNESS GALAXY AND THE LUMINOSITY HISTORY OF 3C273  
*Period Obligations*  
08/25/1992-08/31/1994 FY93: \$0 TOTAL: \$23,050  
*Prin. Invest. NASA Tech. Officer CASE Category*  
T T HAMILTON GSFC/R PETRE 11-Astronomy

**NASA'S UNIVERSITY PROGRAM  
NEW YORK (Continued)**

**NAG 5-2092 Columbia University 5858**  
WAS 49: MIRROR FOR A HIDDEN SEYFERT 1 GALAXY  
*Period Obligations*  
09/16/1992-09/14/1993 FY93: \$6,000 TOTAL: \$6,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J P HALPERN GSFC/D WEST 11-Astronomy

**NAG 5-2235 Columbia University 5859**  
GAMMA-RAY EMISSION FROM GLOBULAR CLUSTERS  
*Period Obligations*  
04/08/1993-04/14/1994 FY93: \$30,150 TOTAL: \$30,150  
*Prin. Invest. NASA Tech. Officer CASE Category*  
P KAARET GSFC/J NORRIS 11-Astronomy

**NAG 5-2272 Columbia University 5860**  
PARTICIPATION AS AN INTERNATIONAL ADVISOR IN THE A STRO-D PROGRAM  
*Period Obligations*  
05/21/1993-05/31/1994 FY93: \$15,000 TOTAL: \$15,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D HELFAND GSFC/N WHITE 11-Astronomy

**NAG 5-2309 Columbia University 5861**  
ARCHAEOLOGY OF THE LOCAL BUBBLE: A SERENDIPITOUS SPECTROSCOPIC SURVEY OF THE EUV DIFFUSE  
*Period Obligations*  
07/01/1993-07/14/1994 FY93: \$100,300 TOTAL: \$100,300  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D C MARTIN GSFC/R OLIVERSEN 11-Astronomy

**NAG 8-917 Columbia University 5862**  
TECHNOLOGY REQUIREMENTS STUDY FOR A BROOD-BRAND X-RAY INTERFEROMETER  
*Period Obligations*  
06/04/1992-06/30/1993 FY93: \$0 TOTAL: \$15,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
C MARTIN MSFC/J DABBS 13-Physics

**NAG 9-329 Columbia University 5863**  
EARLY DIFFERENTIATION OF THE MOON  
*Period Obligations*  
03/01/1989-03/01/1994 FY93: \$0 TOTAL: \$471,410  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J LONGHI JSC/I D BROWNE 19-Phys Sci, NEC

**NAG 9-529 Columbia University 5864**  
SPACE RADIATION EFFECTS ON NEURITOGENESIS  
*Period Obligations*  
05/22/1991-07/01/1994 FY93: \$95,000 TOTAL: \$296,270  
*Prin. Invest. NASA Tech. Officer CASE Category*  
B V WORGUL JSC/D MORRISON 56-Medical Sciences  
R J SOHN

**NAG 9-621 Columbia University 5865**  
DOSE RATE EFFECTS WITH EAST PROTONS/PILOT STUDIES  
*Period Obligations*  
06/30/1992-06/30/1993 FY93: \$0 TOTAL: \$47,500  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D J BRENNER JSC/C YANG 59-Life Sci, NEC

**NAGW 895 Columbia University 5866**  
INFLUENCE OF CLIMATE CHANGE ON DEEP SEA VENTILATION  
*Period Obligations*  
05/15/1986-11/14/1993 FY93: \$146,520 TOTAL: \$1,060,031  
*Prin. Invest. NASA Tech. Officer CASE Category*  
W S BROECKER HQ/M J KURYLO 31-Atmos Sci  
B HAMELIN ....R T WATSON

**NAGW 916 Columbia University 5867**  
MODELING STUDIES  
*Period Obligations*  
07/01/1986-10/31/1993 FY93: \$103,000 TOTAL: \$826,527  
*Prin. Invest. NASA Tech. Officer CASE Category*  
M A CANE HQ/G S LAGERLOEF 33-Oceanography  
....W S WILSON

**NAGW 1344 Columbia University 5868**  
ANTARCTIC OCEAN POLYNYAS  
*Period Obligations*  
06/29/1988-02/28/1993 FY93: \$0 TOTAL: \$241,478  
*Prin. Invest. NASA Tech. Officer CASE Category*  
S S JACOBS HQ/R H THOMAS 33-Oceanography  
A L GORDON ....W S WILSON

**NAGW 1579 Columbia University 5869**  
EFFECTS OF SIMULATED MICROGRAVITY AND HYPERGRAVITY ON  
*Period Obligations*  
02/01/1989-10/31/1993 FY93: \$55,000 TOTAL: \$275,376  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D J WOLGEMUTH HQ/T HALSTEAD 59-Life Sci, NEC

**NAGW 1618 Columbia University 5870**  
PHYSICS OF SYSTEMS CONTAINING NEUTRON STARS  
*Period Obligations*  
01/18/1989-12/31/1993 FY93: \$65,000 TOTAL: \$333,575  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J SHAHAM HQ/L J KALUZIENSKI 11-Astronomy  
....A N BUNNER

**NAGW 1752 Columbia University 5871**  
COSMONAUT POLYNYA: CHARACTERISTICS, DYNAMICS, THERMODYN.  
*Period Obligations*  
05/01/1989-01/31/1993 FY93: \$0 TOTAL: \$190,140  
*Prin. Invest. NASA Tech. Officer CASE Category*  
A L GORDON HQ/R H THOMAS 33-Oceanography  
....W S WILSON

**NAGW 1844 Columbia University 5872**  
EXPLORING THE SOUTHERN OCEAN RESPONSE TO CLIMATE C HANGE  
*Period Obligations*  
01/09/1990-11/30/1992 FY93: \$0 TOTAL: \$315,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D G MARTINSON HQ/R H THOMAS 33-Oceanography  
D RIND ....W S WILSON

**NAGW 1851 Columbia University 5873**  
USING TREE RING ANALYSIS TO DETECT TRACE GAS  
*Period Obligations*  
10/02/1989-12/31/1991 FY93: \$0 TOTAL: \$203,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
G C JACOBY HQ/D E WICKLAND 39-Env Sci, NEC  
....R E MURPHY



**NASA'S UNIVERSITY PROGRAM  
NEW YORK (Continued)**

**NAGW 1887 Columbia University 5874**  
PRE-PHASE A DEVELOPMENT OF A FAR ULTRAVIOLET  
PHOTOMETRIC  
*Period Obligations*  
12/14/1989-10/31/1992 FY93: \$0 TOTAL: \$224,999  
*Prin. Invest. NASA Tech. Officer CASE Category*  
C MARTIN HQ/G C CLAYTON 19-Phys Sci, NEC

**NAGW 1925 Columbia University 5875**  
CIRCULATION STUDIES USING GEOSAT ALTIMETER AND SHI P  
DERIVED DATA  
*Period Obligations*  
05/05/1990-09/30/1992 FY93: \$0 TOTAL: \$303,257  
*Prin. Invest. NASA Tech. Officer CASE Category*  
A L GORDON HQ/G S LAGERLOEF 32-Geological Sci  
...../W S WILSON

**NAGW 2013 Columbia University 5876**  
DEVELOPMENT OF A HIGH RESOLUTION LIQUID XENON IMAG ING  
TELESCOPE FOR MEDIUM ENERGY GAMMA-RAY ASTROPH  
*Period Obligations*  
02/27/1990-12/31/1993 FY93: \$250,000 TOTAL: \$906,840  
*Prin. Invest. NASA Tech. Officer CASE Category*  
E APRILE HQ/L J KALUZIENSKI 11-Astronomy  
...../A N BUNNER

**NAGW 2058 Columbia University 5877**  
NAGW-2058/COLUMBIA UNIV/EVOLUTION OF UPWELLING FRONTS  
OFF THE COAST OF PORTUGAL  
*Period Obligations*  
05/08/1990-02/29/1992 FY93: \$0 TOTAL: \$140,236  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J MARRA HQ/M R LEWIS 33-Oceanography  
...../W S WILSON

**NAGW 2111 Columbia University 5878**  
NAGW-2111/COLUMBIA UNIV/CARBON AND HYDROGEN ISOTOPE  
COMPOSITION AND C CONCENTRATION IN METHANE  
*Period Obligations*  
12/03/1990-06/30/1993 FY93: \$0 TOTAL: \$32,500  
*Prin. Invest. NASA Tech. Officer CASE Category*  
W S BROECKER HQ/M R LEWIS 31-Atmos Sci  
...../R T WATSON

**NAGW 2189 Columbia University 5879**  
NAGW-2189/COLUMBIA UNIV/INVESTIGATIONS OF GLOBAL SHORT  
WAVE AND PHOTOSYNTHETICALLY ACTIVE SURFACE  
*Period Obligations*  
07/25/1990-12/31/1993 FY93: \$67,102 TOTAL: \$317,343  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J K BISHOP HQ/M R LEWIS 33-Oceanography  
R N SAMBROTTO ...../W S WILSON

**NAGW 2479 Columbia University 5880**  
AGES AND ABUNDANCES OF BULGE POPULATIONS  
*Period Obligations*  
05/07/1991-04/30/1994 FY93: \$63,700 TOTAL: \$192,100  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R M RICH HQ/G S KUTTER 11-Astronomy  
...../G R RIEGLER

**NAGW 2507 Columbia University 5881**  
THE ORIGIN OF THE COSMIC X-RAY BACKGROUND  
*Period Obligations*  
06/17/1991-04/30/1994 FY93: \$180,000 TOTAL: \$480,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D J HELFAND HQ/G S KUTTER 11-Astronomy  
...../G R RIEGLER

**NAGW 2565 Columbia University 5882**  
ACCRETION PROCESSES IN CATAclysmic BINARIES  
*Period Obligations*  
08/06/1991-04/30/1994 FY93: \$120,700 TOTAL: \$344,899  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J O PATTERSON HQ/G S KUTTER 11-Astronomy  
...../G R RIEGLER

**NAGW 2566 Columbia University 5883**  
X-RAY EMISSION AS A PROBE OF GALAXY EVOLUTION  
*Period Obligations*  
08/01/1991-04/30/1994 FY93: \$92,800 TOTAL: \$265,200  
*Prin. Invest. NASA Tech. Officer CASE Category*  
T T HAMILTON HQ/G S KUTTER 11-Astronomy  
...../G R RIEGLER

**NAGW 2593 Columbia University 5884**  
LARGE-FORMAT, HIGH RESOLUTION MICROCHANNEL PLATE D  
ETECTORs FOR ULTRAVIOLET ASTRONOMY  
*Period Obligations*  
08/02/1991-05/31/1994 FY93: \$95,000 TOTAL: \$270,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
C MARTIN HQ/R STACHNIK 99-Multi-Discip

**NAGW 2599 Columbia University 5885**  
NAGW-2599/COLUMBIA UNIV/ERS-1 SAR INVESTIGATION OF ICE  
KINEMATICS AND SURFACE WIND FIELDS IN THE WEDDE  
*Period Obligations*  
08/07/1991-03/31/1994 FY93: \$58,673 TOTAL: \$184,248  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D L MARTINSON HQ/R H THOMAS 33-Oceanography

**NAGW 2668 Columbia University 5886**  
NAGW-2668/COLUMBIA UNIV/A PRECALCULUS/CALCULUS MOD EL  
PROJECT TO INCREASE THE POOL OF AFRICAN HISPAN  
*Period Obligations*  
09/17/1991-03/31/1993 FY93: \$150,100 TOTAL: \$251,500  
*Prin. Invest. NASA Tech. Officer CASE Category*  
G LOPEZ JPL/Y FREEMAN 29-Math/Cmputer, NEC  
...../B L WHITE

**NAGW 2703 Columbia University 5887**  
DETERMINATION OF NRM VS. AGE FOR THE OCEANIC CRUST  
*Period Obligations*  
08/21/1991-02/29/1992 FY93: \$0 TOTAL: \$33,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J L LABRECQUE HQ/M BALTUCK 32-Geological Sci  
...../B J MALCOLM

**NAGW 2721 Columbia University 5888**  
DEVELOPMENT OF MICROCHANNEL PLATE X-RAY OPTICS  
*Period Obligations*  
09/16/1991-06/30/1993 FY93: \$20,000 TOTAL: \$30,556  
*Prin. Invest. NASA Tech. Officer CASE Category*  
P KAARET HQ/L KALUZIENSKI 13-Physics

**NASA'S UNIVERSITY PROGRAM  
NEW YORK (Continued)**

**NAGW 3010 Columbia University 5889**  
NUMERICAL SIMULATIONS OF PLASMA TURBULENCE IN THE  
EQUATORIAL ELECTROJET  
*Period Obligations*  
03/20/1992-04/30/1994 FY93: \$65,032 TOTAL: \$130,064  
*Prin. Invest. NASA Tech. Officer CASE Category*  
A BHATTACHARJEE HQ/D L REASONER 13-Physics  
...../J D BOHLIN

**NAGW 3075 Columbia University 5890**  
A THEORETICAL ANALYSIS OF THERMAL RADIATION FROM N  
EUTRON STARS  
*Period Obligations*  
05/15/1992-03/31/1994 FY93: \$60,000 TOTAL: \$120,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J APPELGATE HQ/L J KALUZIENSKI 11-Astronomy  
...../A N BUNNER

**NAGW 3362 Columbia University 5891**  
SEA ICE ON THE SOUTHERN OCEAN  
*Period Obligations*  
01/29/1993-02/28/1994 FY93: \$112,289 TOTAL: \$112,289  
*Prin. Invest. NASA Tech. Officer CASE Category*  
S S JACOBS HQ/R H THOMAS 33-Oceanography  
...../R A SCHIFFER

**NAGW 3407 Columbia University 5892**  
EXPERIMENTAL AND MODELING STUDIES OF MASSIF ANORTH  
OSITES  
*Period Obligations*  
03/01/1993-02/28/1994 FY93: \$30,166 TOTAL: \$30,166  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J LONGHI HQ/H C BRINTON 32-Geological Sci

**NAGW 3434 Columbia University 5893**  
EARLY DIFFERENTIATION OF THE MOON: EXPERIMENTAL AN D  
MODELING STUDIES  
*Period Obligations*  
03/05/1993-02/28/1994 FY93: \$117,322 TOTAL: \$117,322  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J LONGHI HQ/H C BRINTON 32-Geological Sci

**NAGW 3539 Columbia University 5894**  
DIRECT OBSERVATION OF WAVE INDUCED CHAOS  
*Period Obligations*  
04/27/1993-09/31/1994 FY93: \$73,195 TOTAL: \$73,195  
*Prin. Invest. NASA Tech. Officer CASE Category*  
M E MAUEL HQ/E C WHIPPLE 13-Physics  
...../J D BOHLIN

**NAS 5-32063 Columbia University 5895**  
STUDY - 'A COMPLETE PUBLIC ARCHIVE FOR THE EINSTEIN IPC'  
*Period Obligations*  
09/24/1992-09/23/1995 FY93: \$45,000 TOTAL: \$140,600  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D HELFOND GSFC/R OLIVERSEN 11-Astronomy

**NAS 5-33018 Columbia University 5896**  
GLRS SCIENCE TEMA MEMBER STUDY  
*Period Obligations*  
08/25/1989-02/14/1993 FY93: \$0 TOTAL: \$83,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
G R NORTH GSFC/T HAMILTON 39-Env Sci, NEC

**NCC 5-29 Columbia University 5897**  
ATMOSPHERIC, CLIMATIC AND ENVIRONMENTAL RESEARCH  
*Period Obligations*  
10/01/1983-02/28/1994 FY93: \$797,000 TOTAL: \$5,540,715  
*Prin. Invest. NASA Tech. Officer CASE Category*  
W S BROECKER GSFC/L D TRAVIS 31-Atmos Sci  
V M GORNITZ

**NCC 5-34 Columbia University 5898**  
MODELING OF OCEAN CIRCULATION AND ATMOSPHERIC CHEMICAL  
SYSTEMS  
*Period Obligations*  
11/15/1985-12/31/1993 FY93: \$308,056 TOTAL: \$1,360,554  
*Prin. Invest. NASA Tech. Officer CASE Category*  
C K CHU GSFC/R STOTHERS 31-Atmos Sci

**NCC 5-36 Columbia University 5899**  
GLOBAL HABITABILITY STUDIES  
*Period Obligations*  
01/13/1986-10/31/1993 FY93: \$542,783 TOTAL: \$5,221,607  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R L LEVENSON GSFC/L TRAVIS 31-Atmos Sci

**NCC 5-37 Columbia University 5900**  
RESEARCH IN ASTROPHYSICAL PROCESSES  
*Period Obligations*  
07/01/1986-06/30/1993 FY93: \$0 TOTAL: \$449,046  
*Prin. Invest. NASA Tech. Officer CASE Category*  
M A RUDERMAN GSFC/B CARLSON 11-Astronomy

**NCC 5-44 Columbia University 5901**  
MODELLING OF ATMOSPHERIC CIRCULATION AND CHEMISTRY  
*Period Obligations*  
09/13/1991-09/14/1993 FY93: \$933,966 TOTAL: \$1,042,386  
*Prin. Invest. NASA Tech. Officer CASE Category*  
L POLVANI GSFC/D PETEET 31-Atmos Sci

**NCC 5-45 Columbia University 5902**  
A NEW APPROACH TO THE STUDY OF THE TURBULENT LAYER  
*Period Obligations*  
09/17/1991-09/30/1993 FY93: \$0 TOTAL: \$111,530  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R A LEVENSON GSFC/V CANUTO 31-Atmos Sci

**NCC 5-46 Columbia University 5903**  
CALCULATION OF MOLECULAR EXCITATION RATES  
*Period Obligations*  
01/27/1992-01/31/1993 FY93: \$0 TOTAL: \$47,620  
*Prin. Invest. NASA Tech. Officer CASE Category*  
G W FLYNN GSFC/S GREEN 12-Chemistry

**NGT 00-030-081 Columbia University 5904**  
NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
09/11/1991-08/31/1994 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
K G HARRISON HQ/D M BUTLER 39-Env Sci, NEC  
W BROECKER ...../G S WILSON

**NASA'S UNIVERSITY PROGRAM  
NEW YORK (Continued)**

<b>NGT 00-030-162</b>		<b>Columbia University</b>		<b>5905</b>
NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM				
<i>Period</i>		<i>Obligations</i>		
08/24/1993-08/31/1996	FY93: \$22,000	TOTAL: \$22,000		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
R G FAIRBANKS	HQ/G ASRAR	99-Multi-Discip		
	....D M BUTLER			

<b>NGT 00-030-166</b>		<b>Columbia University</b>		<b>5906</b>
NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM				
<i>Period</i>		<i>Obligations</i>		
08/23/1993-08/31/1996	FY93: \$22,000	TOTAL: \$22,000		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
R BELL	HQ/G ASRAR	39-Env Sci, NEC		
	....D M BUTLER			

<b>NGT 00-030-171</b>		<b>Columbia University</b>		<b>5907</b>
NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM				
<i>Period</i>		<i>Obligations</i>		
08/23/1993-08/31/1996	FY93: \$22,000	TOTAL: \$22,000		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
W S BROECKER	HQ/G ASRAR	32-Geological Sci		
	....D M BUTLER			

<b>NGT 00-030-177</b>		<b>Columbia University</b>		<b>5908</b>
NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM				
<i>Period</i>		<i>Obligations</i>		
08/23/1993-08/31/1996	FY93: \$22,000	TOTAL: \$22,000		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
D M PETEET	HQ/G ASRAR	99-Multi-Discip		
	....D M BUTLER			

<b>NGT 00-030-185</b>		<b>Columbia University</b>		<b>5909</b>
NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM				
<i>Period</i>		<i>Obligations</i>		
08/23/1993-08/31/1996	FY93: \$22,000	TOTAL: \$22,000		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
R G FAIRBANKS	HQ/G ASRAR	99-Multi-Discip		
	....D M BUTLER			

<b>NGT 00-030-186</b>		<b>Columbia University</b>		<b>5910</b>
NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM				
<i>Period</i>		<i>Obligations</i>		
08/23/1993-08/31/1996	FY93: \$22,000	TOTAL: \$22,000		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
G BOND	HQ/G ASRAR	33-Oceanography		
	....D M BUTLER			

<b>NGT 00-030-217</b>		<b>Columbia University</b>		<b>5911</b>
NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM				
<i>Period</i>		<i>Obligations</i>		
08/23/1993-08/31/1996	FY93: \$22,000	TOTAL: \$22,000		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
A L GORDON	HQ/G ASRAR	33-Oceanography		
	....D M BUTLER			

<b>NGT 00-050-583</b>		<b>Columbia University</b>		<b>5912</b>
NASA GRADUATE STUDENT RESEARCHERS PROGRAM				
<i>Period</i>		<i>Obligations</i>		
10/02/1990-12/02/1992	FY93: \$22,000	TOTAL: \$44,000		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
G E KAISER	HQ/F C OWENS	22-Computer Science		

<b>NGT 00-050-777</b>		<b>Columbia University</b>		<b>5913</b>
NASA GRADUATE STUDENT RESEARCHERS PROGRAM				
<i>Period</i>		<i>Obligations</i>		
06/10/1991-06/30/1994	FY93: \$22,000	TOTAL: \$66,000		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
C MARTIN	HQ/F C OWENS	11-Astronomy		

<b>NGT 00-050-792</b>		<b>Columbia University</b>		<b>5914</b>
NASA GRADUATE STUDENT RESEARCHERS PROGRAM				
<i>Period</i>		<i>Obligations</i>		
06/28/1991-06/30/1994	FY93: \$22,000	TOTAL: \$66,000		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
C MARTIN	HQ/F C OWENS	13-Physics		

<b>NGT 00-051-038</b>		<b>Columbia University</b>		<b>5915</b>
GRADUATE STUDENT RESEARCHERS PROGRAM				
<i>Period</i>		<i>Obligations</i>		
05/06/1993-05/31/1994	FY93: \$22,000	TOTAL: \$22,000		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
P KAARET	JPL/C HIX	13-Physics		

<b>NAGW 3487</b>		<b>Cooper Union College</b>		<b>5916</b>
ANALYSIS OF DATA FROM THE MAGELLAN SATELLITE FOR T HE SURFACE OF VENUS/NAGW-3487/CORNELL UNIV				
<i>Period</i>		<i>Obligations</i>		
03/27/1993-03/14/1994	FY93: \$50,000	TOTAL: \$50,000		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
S W SQUYRES	HQ/J T BERGSTRALH	32-Geological Sci		

<b>NAG 1-1009</b>		<b>Cornell University</b>		<b>5917</b>
REAL-TIME TRAJECTORY OPTIMIZATION ON PARALLEL PROCESSORS				
<i>Period</i>		<i>Obligations</i>		
06/23/1989-12/30/1992	FY93: \$0	TOTAL: \$168,719		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
M L PSIAKI	LARC/W T SUIT	46-Mech Engr		
	....D D MOERDER			

<b>NAG 1-1078</b>		<b>Cornell University</b>		<b>5918</b>
PROPFAN NOISE PROPAGATION				
<i>Period</i>		<i>Obligations</i>		
12/15/1989-09/30/1992	FY93: \$0	TOTAL: \$144,485		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
A R GEORGE	LARC/F FARASSAT	41-Aero Engr		
	....G L MCANINCH			

<b>NAG 1-1184</b>		<b>Cornell University</b>		<b>5919</b>
CRACK GROWTH PREDICTION METHODOLOGY FOR MULTI-SITE DAMAGE D				
<i>Period</i>		<i>Obligations</i>		
09/27/1990-09/30/1993	FY93: \$138,828	TOTAL: \$399,668		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
A R INGRAFFEA	LARC/J C NEWMAN	46-Mech Engr		
D V SWENSON	....C E HARRIS			

<b>NAG 1-1293</b>		<b>Cornell University</b>		<b>5920</b>
IMAGING SYSTEM FOR FUTURE MARS ROVERS				
<i>Period</i>		<i>Obligations</i>		
07/12/1991-02/28/1993	FY93: \$0	TOTAL: \$63,001		
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>		
S W SQUYRES	LARC/F O HUCK	11-Astronomy		

**NASA'S UNIVERSITY PROGRAM**  
**NEW YORK (Continued)**

**NAG 1-1311** **Cornell University** **5921**  
 MODE I/II FATIGUE CRACK GROWTH MEASUREMENTS IN 2024  
 ALUMINUM SHEET - FDP  
*Period* *Obligations*  
 08/08/1991-09/30/1993 FY93: \$87,521 TOTAL: \$169,837  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 A R INGRAFFEA LARC/J C NEWMAN 46-Mech Engr  
 A T ZEHNDER ....C E HARRIS

**NAG 2-650** **Cornell University** **5928**  
 SUPPORT FOR MULTICAST COMMUNICATIONS ACROSS WIDE- AREA  
 NETWORKS  
*Period* *Obligations*  
 07/02/1990-11/30/1992 FY93: \$0 TOTAL: \$373,232  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 S W BRIM ARC/H LUM 22-Computer Science  
 ....D MCKELLAR

**NAG 1-1396** **Cornell University** **5922**  
 TILT ROTOR BLADE VORTEX INTERACTION NOISE - FDP  
*Period* *Obligations*  
 01/31/1992-12/31/1993 FY93: \$16,336 TOTAL: \$93,996  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 A R GEORGE LARC/D R HOAD 41-Aero Engr  
 ....D A CONNER

**NAG 2-660** **Cornell University** **5929**  
 DEVELOPMENT AND EVALUATION OF SI BIB DETECTORS FO R  
 SIRT  
*Period* *Obligations*  
 07/31/1990-11/30/1993 FY93: \$130,000 TOTAL: \$390,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 T L HERTER ARC/C R MCCREIGHT 11-Astronomy  
 ....R E MCMURRAY JR.

**NAG 1-1542** **Cornell University** **5923**  
 PDF METHODS FOR COMBUSTION IN HIGH-SPEED TURBULENT  
 FLOWS  
*Period* *Obligations*  
 08/27/1993-08/24/1994 FY93: \$50,000 TOTAL: \$50,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 S B POPE LARC/J P DRUMMOND 41-Aero Engr

**NAG 2-665** **Cornell University** **5930**  
 MULTIGRID METHODS FOR AERODYNAMIC PROBLEMS IN COM PLEX  
 GEOMETRIES  
*Period* *Obligations*  
 08/16/1990-09/31/1993 FY93: \$0 TOTAL: \$259,322  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 D A CAUGHEY ARC/W J CHYU 41-Aero Engr  
 ....D P BENCZE

**NAG 1-1543** **Cornell University** **5924**  
 JET MIXING ENHANCEMENT BY FEEDBACK CONTROL  
*Period* *Obligations*  
 09/16/1993-09/12/1994 FY93: \$180,000 TOTAL: \$180,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 J L LUMLEY LARC/J M SEINER 41-Aero Engr  
 ....M K PONTON

**NAG 2-680** **Cornell University** **5931**  
 VENUS CLOUD PATTERNS AND MOTIONS  
*Period* *Obligations*  
 11/08/1990-09/30/1992 FY93: \$0 TOTAL: \$69,270  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 P J GIERASCH ARC/L F LASHER 11-Astronomy  
 ....R O FIMMEL

**NAG 2-207** **Cornell University** **5925**  
 MEDIUM AND HIGH RESOLUTION INFRARED SPECTROSCOPY FROM  
 THE G. P. KUIPER AIRBORN OBSERVA  
*Period* *Obligations*  
 11/01/1982-10/31/1994 FY93: \$331,844 TOTAL: \$2,010,223  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 T HERTER ARC/C D LAUGHLIN 11-Astronomy  
 T L HERTER

**NAG 2-696** **Cornell University** **5932**  
 RESEARCH FACILITY TEAM MEMBERSHIP FOR THE SETI TA RGETED  
 SEARCH  
*Period* *Obligations*  
 03/19/1991-04/30/1992 FY93: \$0 TOTAL: \$11,015  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 M M DAVIS ARC/D H BROCKER 11-Astronomy

**NAG 2-554** **Cornell University** **5926**  
 TILT ROTOR AIRCRAFT AEROACOUSTICS TILT ROTOR AIRCRAFT  
 AEROACOUSTICS  
*Period* *Obligations*  
 01/25/1989-12/31/1993 FY93: \$62,000 TOTAL: \$322,701  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 A R GEORGE ARC/M MOSHER 41-Aero Engr  
 ....W WARMBRODT

**NAG 2-697** **Cornell University** **5933**  
 INTERSTELLAR SCATTERING IMPLICATIONS FOR SETI DET ECTION  
 STRATEGIES  
*Period* *Obligations*  
 03/15/1991-10/31/1993 FY93: \$32,931 TOTAL: \$143,463  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 J M CORDES ARC/D H BROCKER 11-Astronomy

**NAG 2-593** **Cornell University** **5927**  
 VERY LARGE FAULT-TOLERANT DISTRIBUTED SYSTEMS  
*Period* *Obligations*  
 08/17/1989-12/31/1992 FY93: \$0 TOTAL: \$2,163,146  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 K P BIRMAN ARC/H LUM 22-Computer Science  
 ....D MCKELLAR

**NAG 2-742** **Cornell University** **5934**  
 EFFECTS OF AGRICULTURAL DEVELOPMENT ON TRACE GAS  
 FLUXES IN THE BRAZILIAM CERRADO  
*Period* *Obligations*  
 11/27/1991-05/31/1994 FY93: \$0 TOTAL: \$143,180  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 J M DUXBURY ARC/J MAZZURCO 55-Agriculture Sci

**NASA'S UNIVERSITY PROGRAM**  
**NEW YORK (Continued)**

**NAG 2-800 Cornell University 5935**  
 KWIC: A WIDEFIELD MID-INFRARED ARRAY CAMERA/SPECTROMETER FOR THE KAO  
*Period Obligations*  
 08/27/1992-10/31/1994 FY93: \$199,700 TOTAL: \$354,700  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 G STACEY ARC/C D LAUGHLIN 11-Astronomy  
 ....C M GILLESPIE

**NAG 3-349 Cornell University 5936**  
 STALL-RECOVERY RESEARCH  
*Period Obligations*  
 11/08/1982-06/30/1993 FY93: \$0 TOTAL: \$610,818  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 F K MOORE LERC/F A NEWMAN 41-Aero Engr

**NAG 3-801 Cornell University 5937**  
 INFL HYDRO ON CAP CONTAIN OF LIQU IN MICROGRAV ENVIRN  
*Period Obligations*  
 05/19/1987-09/30/1993 FY93: \$0 TOTAL: \$426,148  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 P H STEEN LERC/J A SALZMAN 43-Chem Engr

**NAG 3-987 Cornell University 5938**  
 THE COMBUSTION OF FREE OR UNSUPPORTED DROPLETS AT LOW GRAVITY  
*Period Obligations*  
 02/07/1989-02/27/1993 FY93: \$0 TOTAL: \$182,852  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 C T AVEDISIAN LERC/J B HAGGARD 46-Mech Engr

**NAG 3-1063 Cornell University 5939**  
 PARALLEL PROCESSING FOR NONLINEAR STRUCTURAL DYNAMICS SIMULATIONS  
*Period Obligations*  
 07/25/1989-02/28/1993 FY93: \$0 TOTAL: \$185,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J F ABEL LERC/C LAWRENCE 41-Aero Engr

**NAG 3-1069 Cornell University 5940**  
 WAVE PROCESSES APPLIED TO AEROPROPULSION  
*Period Obligations*  
 09/22/1989-02/24/1994 FY93: \$127,275 TOTAL: \$593,418  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 E L RESLER LERC/F A NEWMAN 41-Aero Engr

**NAG 3-1114 Cornell University 5941**  
 NOX POLLUTION FROM JET ENGINES  
*Period Obligations*  
 03/13/1990-04/19/1994 FY93: \$107,270 TOTAL: \$385,424  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 Z L RESLER LERC/C M LEE 41-Aero Engr

**NAG 3-1210 Cornell University 5942**  
 MINORITY ENGINEERING PROGRAM  
*Period Obligations*  
 09/24/1990-09/30/1992 FY93: \$0 TOTAL: \$50,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M E THOMPSON LERC/R F LAWRENCE 49-Engr, NEC  
 ....R L BONDURANT

**NAG 3-1358 Cornell University 5943**  
 ACCESS CONTROL FOR DISTRIBUTED STORAGE SYSTEMS RESEARCH  
*Period Obligations*  
 07/01/1992-08/31/1993 FY93: \$0 TOTAL: \$99,893  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A HANUSHEVSKY LERC/G L WEEGMANN 22-Computer Science

**NAG 3-1401 Cornell University 5944**  
 FLOW-INFLUENCED SHAPE STABILITY IN LOW GRAVITY  
*Period Obligations*  
 12/23/1992-12/31/1993 FY93: \$85,159 TOTAL: \$85,159  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 P H STEEN LERC/A T CHAI 19-Phys Sci, NEC

**NAG 3-1451 Cornell University 5945**  
 NUMERICAL MODELING OF LOW-DENSITY PLUMES USING A MONTE CARLO TECHNIQUE  
*Period Obligations*  
 03/12/1993-01/04/1994 FY93: \$50,000 TOTAL: \$50,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 I D BOYD LERC/P F PENKO 13-Physics

**NAG 5-601 Cornell University 5946**  
 A NEW TECHNIQUE  
*Period Obligations*  
 02/01/1982-03/31/1994 FY93: \$60,000 TOTAL: \$1,772,758  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 P M KINTNER GSFC/L J EARLY 13-Physics  
 M C KELLEY ....R H PLESS

**NAG 5-666 Cornell University 5947**  
 RADAR SUPPORT FOR ROCKET STUDY  
*Period Obligations*  
 05/04/1990-04/30/1994 FY93: \$160,000 TOTAL: \$368,681  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 W E SWARTZ GSFC/L J EARLY 13-Physics  
 ....R H PLESS

**NAG 5-681 Cornell University 5948**  
 ANALYSIS OF INTERFEROMETRIC PLASMA WAVE DATA NEAR THE ELECTRON PLASMA AND GYROFREQUENCIES  
*Period Obligations*  
 04/30/1991-04/30/1994 FY93: \$0 TOTAL: \$83,434  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 P KINTNER GSFC/L J EARLY 13-Physics  
 ....R H PLESS

**NAG 5-687 Cornell University 5949**  
 WISP2 A PROPOSAL TO REPLY WISP1 'WISP2' A PROPOSAL TO REPLY WISP1  
*Period Obligations*  
 06/20/1991-03/31/1994 FY93: \$130,000 TOTAL: \$338,778  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 P KINTNER GSFC/L J EARLY 13-Physics  
 ....R H PLESS

**NASA'S UNIVERSITY PROGRAM  
NEW YORK (Continued)**

**NAG 5-691 Cornell University 5950**  
SOUNDING OF THE CLEFT ION FOUNTAIN ENERGIZATION REGION (SCIFER)  
*Period Obligations*  
05/26/1992-05/31/1994 FY93: \$117,000 TOTAL: \$138,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
P KINTNER GSFC/L J EARLY 13-Physics  
....R H PLESS

**NAG 5-813 Cornell University 5951**  
PARTICIPATION IN THE VAYAGUE INFRARED SPECTROSCOPY EXPERIMENT  
*Period Obligations*  
10/15/1986-12/31/1993 FY93: \$78,448 TOTAL: \$442,106  
*Prin. Invest. NASA Tech. Officer CASE Category*  
P J GIERASCH GSFC/B J CONRATH 31-Atmos Sci

**NAG 5-1307 Cornell University 5952**  
INVESTIGATIONS IN SUPPORT OF THE ANTARACTIC GAMMA-RAY  
*Period Obligations*  
11/03/1989-11/30/1993 FY93: \$5,000 TOTAL: \$15,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
S W SQUIRES GSFC/J I TROMBKA 19-Phys Sci, NEC

**NAG 5-1378 Cornell University 5953**  
MEASUREMENT AND ANALYSIS OF PROFILES THRU ATMOSPHERE  
*Period Obligations*  
04/25/1990-06/30/1994 FY93: \$89,700 TOTAL: \$257,448  
*Prin. Invest. NASA Tech. Officer CASE Category*  
W BRUTSAERT GSFC/F G HALL 31-Atmos Sci

**NAG 5-1452 Cornell University 5954**  
ROTATION DRIVE PULSAR MAGNETOSPHERES/IONIZED  
*Period Obligations*  
08/27/1990-06/30/1993 FY93: \$64,329 TOTAL: \$158,772  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J M CORDES GSFC/J P NORRIS 11-Astronomy  
....D A KNIFFEN

**NAG 5-1545 Cornell University 5955**  
STUDIES OF THE VELOCITY AND DENSITY SPECTRAL OF IONOSPHERIC PLASMA INSTABILITIES USING THE ATMOSPHERE  
*Period Obligations*  
04/17/1991-04/30/1994 FY93: \$67,623 TOTAL: \$192,409  
*Prin. Invest. NASA Tech. Officer CASE Category*  
M G KELLEY GSFC/G D BULLOCK 19-Phys Sci, NEC

**NAG 5-1563 Cornell University 5956**  
GAMMA-RAY LINES FROM ACCRETING NEUTRON STARS  
*Period Obligations*  
04/18/1991-10/31/1993 FY93: \$29,970 TOTAL: \$38,545  
*Prin. Invest. NASA Tech. Officer CASE Category*  
I M WASSERMAN GSFC/J P NORRIS 11-Astronomy  
....D A KNIFFEN

**NAG 5-1669 Cornell University 5957**  
AVERAGE FLUXES FROM FIR CO-ADDS: METHODOLOGY DWARF GALAXIES, EVOLUTION AND GALAXY PAIRS  
*Period Obligations*  
06/27/1991-06/30/1993 FY93: \$0 TOTAL: \$58,607  
*Prin. Invest. NASA Tech. Officer CASE Category*  
F F SALPETER GSFC/D WEST 11-Astronomy

**NAG 5-1758 Cornell University 5958**  
BAYESIAN ANALYSIS OF GAMMA-RAY DATA AND THE FORMAT ION OF THE GAMMA-RAY BURST CONTINUUM  
*Period Obligations*  
09/17/1991-09/30/1993 FY93: \$48,641 TOTAL: \$99,532  
*Prin. Invest. NASA Tech. Officer CASE Category*  
T J LOREDO GSFC/J P NORRIS 11-Astronomy  
....C A GEHRELS

**NAG 5-1989 Cornell University 5959**  
ATMOSPHERIC SOUNDINGS DURING THE WASHITA-92 CAMPAIGN  
*Period Obligations*  
05/28/1992-09/30/1992 FY93: \$0 TOTAL: \$20,975  
*Prin. Invest. NASA Tech. Officer CASE Category*  
W BRUTSAERT GSFC/E T ENGMAN 39-Env Sci, NEC

**NAG 5-2120 Cornell University 5960**  
ARE MIRAS WITH MASERS SYMBIOTIC STARS  
*Period Obligations*  
10/08/1992-01/31/1994 FY93: \$7,590 TOTAL: \$7,590  
*Prin. Invest. NASA Tech. Officer CASE Category*  
B M LEWIS GSFC/D WEST 11-Astronomy

**NAG 5-5008 Cornell University 5961**  
AMICIST AUROREAL MICROPHYSICS AND ION CONICS: INVESTIGATION  
*Period Obligations*  
05/12/1993-12/31/1993 FY93: \$50,413 TOTAL: \$50,413  
*Prin. Invest. NASA Tech. Officer CASE Category*  
P KINTNER GSFC/L J EARLY 13-Physics  
....R H PLESS

**NAG 5-5009 Cornell University 5962**  
AMICIST A STUDY OF ELECTROMAGNETIC PULSE FROM LIGHTNING AND  
*Period Obligations*  
05/12/1993-12/31/1993 FY93: \$98,292 TOTAL: \$98,292  
*Prin. Invest. NASA Tech. Officer CASE Category*  
M C KELLEY GSFC/L J EARLY 13-Physics  
....R H PLESS

**NAGW 310 Cornell University 5963**  
STUDIES OF PLANETARY RINGS  
*Period Obligations*  
03/15/1982-09/30/1993 FY93: \$110,875 TOTAL: \$976,545  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J A BURNS HQ/J UNDERWOOD 32-Geological Sci  
....J M BOYCE

**NAGW 493 Cornell University 5964**  
TEMPLATE REACTIONS AND CHEMICAL EVOLUTION  
*Period Obligations*  
06/01/1983-12/31/1993 FY93: \$72,001 TOTAL: \$641,515  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D A USHER HQ/J RUMMEL 12-Chemistry  
....J M AVERNER

**NAGW 544 Cornell University 5965**  
DYNAMICAL STUDIES OF SATURN'S RINGS  
*Period Obligations*  
03/01/1984-09/30/1993 FY93: \$52,077 TOTAL: \$330,835  
*Prin. Invest. NASA Tech. Officer CASE Category*  
P D NICHOLSON HQ/J R UNDERWOOD 32-Geological Sci  
....J M BOYCE

**NASA'S UNIVERSITY PROGRAM  
NEW YORK (Continued)**

**NAGW 666** **Cornell University** **5966**  
THEOR PHYS OF ACCRETING MAG NEUTRON STARS/X-RAY  
EMISSION  
*Period* *Obligations*  
11/01/1984-10/31/1993 FY93: \$78,480 TOTAL: \$534,908  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
E E SALPETER HQ/L J KALUZIENSKI 11-Astronomy  
...../A BUNNER

**NAGW 1997** **Cornell University** **5973**  
STUDIES OF THERMAL STRUCTURES AND MOTIONS OF PLANE  
TARY ATMOSPHERES  
*Period* *Obligations*  
03/16/1990-11/30/1993 FY93: \$114,926 TOTAL: \$433,226  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
P GIERASCH HQ/J T BERGSTRAHLH 11-Astronomy

**NAGW 1023** **Cornell University** **5967**  
GEOLOGIC STUDIES OF MARS AND OUTER PLANETS  
*Period* *Obligations*  
11/01/1986-09/30/1993 FY93: \$120,200 TOTAL: \$810,709  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
S SQUYRES HQ/J UNDERWOOD 32-Geological Sci  
...../J M BOYCE

**NAGW 2011** **Cornell University** **5974**  
GENERATION OF DOUBLE LAYERS AND LOW-FREQUENCY TURB  
ULENCE BY KINETIC WAVES  
*Period* *Obligations*  
05/05/1990-03/31/1994 FY93: \$76,100 TOTAL: \$238,750  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
N F OTANI HQ/M M MELLOTT 13-Physics  
...../T PERRY

**NAGW 1262** **Cornell University** **5968**  
KINETICS OF NUCLEO AND CONDENSATION  
*Period* *Obligations*  
04/21/1988-11/30/1992 FY93: \$0 TOTAL: \$164,848  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
S H BAUER HQ/F C GILLET 11-Astronomy

**NAGW 2084** **Cornell University** **5975**  
STUDY OF THE EFFECTS OF PHOTOMETRIC GEOMETRY ON SP  
ECTRAL REFLECTANCE MEASUREMENTS  
*Period* *Obligations*  
05/30/1990-09/30/1993 FY93: \$63,700 TOTAL: \$244,700  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J VEVERKA HQ/T A MAXWELL 32-Geological Sci

**NAGW 1420** **Cornell University** **5969**  
IMPLICATIONS OF CONVECTION WITHIN THE MOON AND TERR.  
PLANETS  
*Period* *Obligations*  
08/18/1988-09/30/1993 FY93: \$20,000 TOTAL: \$100,500  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
D L TURCOTTE HQ/J R UNDERWOOD 32-Geological Sci

**NAGW 2149** **Cornell University** **5976**  
SPACECRAFT PLANETARY IMAGING FACILITY  
*Period* *Obligations*  
06/13/1991-09/30/1993 FY93: \$32,400 TOTAL: \$121,756  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J VEVERKA HQ/T A MAXWELL 32-Geological Sci

**NAGW 1444** **Cornell University** **5970**  
LOW-TEMPERATURE THERMODYNAMICS AND LIQUID-VAPOR  
EQUILIBRIA  
*Period* *Obligations*  
08/26/1988-10/31/1993 FY93: \$72,725 TOTAL: \$315,546  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
W R THOMPSON HQ/K FOX 11-Astronomy  
...../W L QUIADE

**NAGW 2186** **Cornell University** **5977**  
PHYSICAL STUDIES OF PLANETARY AND SATELLITE SURFAC ES  
*Period* *Obligations*  
03/01/1991-09/30/1993 FY93: \$74,992 TOTAL: \$225,892  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J VEVERKA HQ/T A MAXWELL 32-Geological Sci

**NAGW 1870** **Cornell University** **5971**  
INTERDISCIPLINARY INVESTIGATIONS OF COMPARATIVE PL  
ANETOLOGY  
*Period* *Obligations*  
03/13/1990-09/30/1993 FY93: \$71,872 TOTAL: \$267,685  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
C SAGAN HQ/T A MAXWELL 32-Geological Sci

**NAGW 2224** **Cornell University** **5978**  
NAGW-2224/CORNELL UNIV/GLOBULAR CLUSTER EVOLUTION  
*Period* *Obligations*  
08/30/1990-12/31/1993 FY93: \$100,344 TOTAL: \$353,998  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
D F CHERNOFF HQ/G S KUTTER 11-Astronomy  
...../G R RIEGLER

**NAGW 1896** **Cornell University** **5972**  
EXOBIOLGY AND THE ORIGIN OF LIFE  
*Period* *Obligations*  
11/16/1989-03/31/1994 FY93: \$150,000 TOTAL: \$600,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
C SAGAN HQ/M MEYER 12-Chemistry

**NAGW 2225** **Cornell University** **5979**  
INVESTIGATION OF THE CONDITIONS REQUIRED FOR SMALL SCALE  
FLUVIAL ACTIVITY ON MARS  
*Period* *Obligations*  
06/07/1991-10/31/1993 FY93: \$25,000 TOTAL: \$75,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
S W SQUYRES HQ/T A MAXWELL 11-Astronomy

**NASA'S UNIVERSITY PROGRAM  
NEW YORK (Continued)**

**NAGW 2237** **Cornell University** **5980**  
SURFACE WINDS ON MARS: SEASONAL AND TOPOGRAPHICAL  
EFFECTS ON FLOW AND SEDIMENT TRANSPORT  
*Period* *Obligations*  
12/07/1990-10/31/1991 FY93: \$0 TOTAL: \$30,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
P C THOMAS HQ/T A MAXWELL 32-Geological Sci

**NAGW 2733** **Cornell University** **5987**  
ALTERNATE DETECTOR TECHNOLOGIES SIRT  
*Period* *Obligations*  
09/16/1991-06/30/1992 FY93: \$0 TOTAL: \$20,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
S V BECKWITH HQ/M D BICAY 99-Multi-Discip

**NAGW 2293** **Cornell University** **5981**  
MAGNETOHYDRODYNAMICS OF PROTOSTELLAR NEBULAE  
*Period* *Obligations*  
05/22/1991-10/31/1993 FY93: \$20,000 TOTAL: \$60,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
LOVELACE HQ/J A NUTH 19-Phys Sci, NEC

**NAGW 2768** **Cornell University** **5988**  
LABORATORY MEASUREMENTS OF CELESTIAL SOLIDS  
*Period* *Obligations*  
11/15/1991-10/31/1993 FY93: \$57,464 TOTAL: \$119,285  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
A J SIEVERS HQ/L J CAROFF 11-Astronomy  
S V BECKWITH ....M D BICAY

**NAGW 2364** **Cornell University** **5982**  
ASTROPHYSICAL STUDIES OF COMPACT STARS ON A SUPERCOMPUTER  
*Period* *Obligations*  
02/25/1991-01/31/1994 FY93: \$85,000 TOTAL: \$240,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
S L SHAPIRO HQ/G S KUTTER 11-Astronomy  
.....G R RIEGLER

**NAGW 2870** **Cornell University** **5989**  
THE DEVELOPMENT OF INFRARED DETECTORS AND MECHANISMS FOR USE IN FUTURE INFRARED SPACE MISSIONS  
*Period* *Obligations*  
02/03/1992-12/31/1993 FY93: \$1,860,070 TOTAL: \$3,436,070  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J R HOUCK HQ/L J CAROFF 11-Astronomy

**NAGW 2374** **Cornell University** **5983**  
IN SITU INVESTIGATION MARTIAN VOLATILES, GEOCHEMISTRY, AND MINERALOGY  
*Period* *Obligations*  
07/09/1991-01/31/1994 FY93: \$30,800 TOTAL: \$48,878  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
S SQUYRES HQ/W L QUAIDE 19-Phys Sci, NEC

**NAGW 2916** **Cornell University** **5990**  
RADIATIVE-DYNAMICAL EFFECTS DUE TO CLOUDS ON THE OUTER PLANETS  
*Period* *Obligations*  
02/27/1992-03/31/1994 FY93: \$52,318 TOTAL: \$101,970  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
P J GIERASCH HQ/W L QUAIDE 19-Phys Sci, NEC

**NAGW 2434** **Cornell University** **5984**  
ANALYSIS OF VOYAGER DATA ON NEPTUNE'S RINGS  
*Period* *Obligations*  
03/22/1991-12/31/1992 FY93: \$0 TOTAL: \$68,603  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
P D NICHOLSON HQ/W L QUAIDE 19-Phys Sci, NEC

**NAGW 2938** **Cornell University** **5991**  
THEORETICAL INVESTIGATION OF THE DYNAMICS OF PATTERNS AND SCALE IN A SERPENTINE GRASSLAND  
*Period* *Obligations*  
02/28/1992-11/30/1994 FY93: \$0 TOTAL: \$90,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
S A LEVIN HQ/M M AVERNER 59-Life Sci, NEC

**NAGW 2551** **Cornell University** **5985**  
NAGW-2551/AN INFRARED CAMERA/SPECTROGRAPH FOR THE PALOMAR OBSERVATORY  
*Period* *Obligations*  
06/11/1991-12/31/1993 FY93: \$75,000 TOTAL: \$221,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J R HOUCK HQ/M D BICAY 11-Astronomy

**NAGW 2960** **Cornell University** **5992**  
THEORY AND SIMULATION OF ELECTROMAGNETIC WAVE PHENOMENA  
*Period* *Obligations*  
03/03/1992-12/31/1993 FY93: \$41,000 TOTAL: \$79,700  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
C E SEYLER HQ/D L REASONER 13-Physics  
.....J D BOHLIN

**NAGW 2638** **Cornell University** **5986**  
TECTONIC/CLIMATIC DYNAMICS AND CRUSTAL EVOLUTION IN THE ANDEAN OROGEN  
*Period* *Obligations*  
08/02/1991-12/31/1993 FY93: \$360,000 TOTAL: \$1,020,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
B ISACKS HQ/M BALTUCK 39-Env Sci, NEC  
T E JORDAN ....B J MALCOLM  
A L BLOOM

**NAGW 3273** **Cornell University** **5993**  
STUDIES OF SATELLITE AND PLANETARY ATMOSPHERES  
*Period* *Obligations*  
11/16/1992-10/31/1994 FY93: \$76,753 TOTAL: \$76,753  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
C SAGAN HQ/J T BERGSTRALH 19-Phys Sci, NEC



**NASA'S UNIVERSITY PROGRAM  
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**NAGW 3274 Cornell University 5994**  
SURFACE WINDS ON MARS; SEASONAL AND TOPOGRAPHIC EFFECTS ON FLOW AND SEDIMENT TRANSPORT  
*Period Obligations*  
11/16/1992-10/31/1993 FY93: \$30,000 TOTAL: \$30,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
P C THOMAS HQ/H C BRINTON 32-Geological Sci

**NAGW 3275 Cornell University 5995**  
NAGW-3275/CORNELL UNIV/SHAPES, SURFACES AND INTERIORS OF SATELLITES AND ASTEROIDS  
*Period Obligations*  
11/13/1992-10/31/1993 FY93: \$34,477 TOTAL: \$34,477  
*Prin. Invest. NASA Tech. Officer CASE Category*  
P C THOMAS HQ/H C BRINTON 32-Geological Sci

**NAGW 3283 Cornell University 5996**  
NAGW-3283/CORNELL UNIV/DEVELOPMENT OF A MARS SURFACE IMAGER  
*Period Obligations*  
12/21/1992-09/30/1993 FY93: \$187,956 TOTAL: \$187,956  
*Prin. Invest. NASA Tech. Officer CASE Category*  
S W SQUYRES HQ/H C BRINTON 19-Phys Sci, NEC

**NAGW 3320 Cornell University 5997**  
SMALL BODIES SCIENCE WORKING GROUP  
*Period Obligations*  
12/31/1992-12/31/1993 FY93: \$70,969 TOTAL: \$70,969  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J VEYERKA HQ/C B PILCHER 39-Env Sci, NEC

**NAGW 3341 Cornell University 5998**  
NAGW-3341/CORNELL UNIV/GRAVITY-INDUCED POLARITY OF TRANSPORT IN PLANTS  
*Period Obligations*  
01/26/1993-11/30/1993 FY93: \$60,000 TOTAL: \$60,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R WAYNE HQ/T W HALSTEAD 51-Biological Sci

**NAGW 3591 Cornell University 5999**  
ASTEROID STUDIES  
*Period Obligations*  
05/20/1993-12/31/1993 FY93: \$76,414 TOTAL: \$76,414  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J VEYERKA HQ/H C BRINTON 11-Astronomy

**NAGW 3597 Cornell University 6000**  
AN INTEGRATED THERMAL AND TECTONIC MODEL FOR VENUS  
*Period Obligations*  
05/21/1993-04/30/1994 FY93: \$45,000 TOTAL: \$45,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D L TURCOTTE HQ/J T BERGSTRALH 32-Geological Sci

**NAGW 10-71 Cornell University 6001**  
GRAVITY-INDUCED POLARITY OF TRANSPORT IN PLANTS  
*Period Obligations*  
04/19/1990-03/31/1993 FY93: \$0 TOTAL: \$180,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R WAYNE KSC/W M KNOTT 55-Agriculture Sci

**NAS 5-31275 Cornell University 6002**  
PASSIVE HIGH TEMPERATURE SUPERCONDUCTING MAGNETIC  
*Period Obligations*  
09/25/1990-09/30/1993 FY93: \$0 TOTAL: \$277,550  
*Prin. Invest. NASA Tech. Officer CASE Category*  
F C MOON GSFC/Y FLOM 46-Mech Engr

**NAS 5-31723 Cornell University 6003**  
EOS INVESTIGATION 'GLOBAL HYDROLOGIC PROCESSES AND CLIMATE'  
*Period Obligations*  
12/10/1991-12/10/1996 FY93: \$127,125 TOTAL: \$293,250  
*Prin. Invest. NASA Tech. Officer CASE Category*  
W BRUTSAET GSFC/W LAU 39-Env Sci, NEC

**NAS 8-36687 Cornell University 6004**  
STUDY ENTITLED 'DEFINITION PHASE OF THE NASA CRRES MISSION'  
*Period Obligations*  
08/30/1985-05/31/1993 FY93: \$65,660 TOTAL: \$1,143,035  
*Prin. Invest. NASA Tech. Officer CASE Category*  
M KELLEY MSFC/J F STONE 31-Atmos Sci  
...../L RICHARDS

**NAS10-11880 Cornell University 6005**  
ONSITE MEDICAL SUPPORT DURING STS LAUNCH AND LANDING OPERATIONS  
*Period Obligations*  
01/30/1992-09/30/1994 FY93: \$146,429 TOTAL: \$198,719  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R J MELKER KSC/I D LONG 56-Medical Sciences

**NCA 2-640 Cornell University 6006**  
STUDIES OF RING OCCULTATION DATA FROM VOYAGER  
*Period Obligations*  
07/19/1991-06/30/1993 FY93: \$0 TOTAL: \$25,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
P D NICHOLSON ARC/J N CUZZI 11-Astronomy

**NCA 2-820 Cornell University 6007**  
DEVELOPMENT OF A HYBRID COMPUTATIONAL METHODOLOGY FOR SIMULATION OF HYPERSONIC TRANSITIONAL FLOWS  
*Period Obligations*  
06/03/1993-05/31/1995 FY93: \$39,997 TOTAL: \$39,997  
*Prin. Invest. NASA Tech. Officer CASE Category*  
I BOYD ARC/G S DEIWERT 41-Aero Engr

**NCA 2-832 Cornell University 6008**  
STUDIES OF EARTH-BASED OCCULTATION DATA  
*Period Obligations*  
07/21/1993-06/30/1995 FY93: \$20,964 TOTAL: \$20,964  
*Prin. Invest. NASA Tech. Officer CASE Category*  
P D NICHOLSON ARC/J N CUZZI 11-Astronomy

**NGT 00-030-065 Cornell University 6009**  
NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
09/01/1991-08/31/1994 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R J QUALLS HQ/D M BUTLER 39-Env Sci, NEC  
W BRUTSAERT ...../G S WILSON

**NASA'S UNIVERSITY PROGRAM  
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**NGT 00-040-012** **Cornell University** **6010**  
NATIONAL SPACE GRANT COLLEGE AND FELLOWSHIP PROGRAM  
*Period* *Obligations*  
10/04/1989-01/31/1994 FY93: \$380,000 TOTAL: \$1,460,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
P J GIERASCH HQ/E T SCHWARTZ 99-Multi-Discip

**NGT 00-050-846** **Cornell University** **6018**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period* *Obligations*  
08/30/1991-08/18/1994 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
P J GIERASCH HQ/F C OWENS 11-Astronomy

**NGT 00-050-516** **Cornell University** **6011**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period* *Obligations*  
09/07/1989-08/31/1992 FY93: \$0 TOTAL: \$62,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
D A HAMMER HQ/F C OWENS 43-Chem Engr

**NGT 00-050-847** **Cornell University** **6019**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period* *Obligations*  
08/12/1991-08/18/1994 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
S V BECKWITH HQ/F C OWENS 11-Astronomy

**NGT 00-050-517** **Cornell University** **6012**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period* *Obligations*  
10/02/1989-02/28/1993 FY93: \$0 TOTAL: \$62,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
B L ISACKS HQ/F C OWENS 32-Geological Sci

**NGT 00-050-850** **Cornell University** **6020**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period* *Obligations*  
08/12/1991-08/31/1993 FY93: \$0 TOTAL: \$44,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
G FIELD HQ/F C OWENS 11-Astronomy

**NGT 00-050-654** **Cornell University** **6013**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period* *Obligations*  
09/11/1990-08/31/1993 FY93: \$0 TOTAL: \$66,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
T E JORDAN HQ/F C OWENS 32-Geological Sci

**NGT 00-050-852** **Cornell University** **6021**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period* *Obligations*  
08/12/1991-08/31/1994 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
T JORDAN HQ/F C OWENS 32-Geological Sci

**NGT 00-050-664** **Cornell University** **6014**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period* *Obligations*  
08/23/1990-08/14/1993 FY93: \$0 TOTAL: \$66,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
P M KINTNER HQ/F C OWENS 13-Physics

**NGT 00-050-912** **Cornell University** **6022**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period* *Obligations*  
06/22/1992-06/30/1994 FY93: \$22,000 TOTAL: \$44,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
C T AVEDISIAN HQ/J K ALEXANDER 46-Mech Engr

**NGT 00-050-786** **Cornell University** **6015**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period* *Obligations*  
05/13/1991-06/30/1994 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R L CONSTABLE HQ/F C OWENS 22-Computer Science  
P B JACKSON

**NGT 00-050-960** **Cornell University** **6023**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period* *Obligations*  
06/15/1992-08/19/1994 FY93: \$22,000 TOTAL: \$44,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
B ISACKS HQ/J ALEXANDER 13-Physics

**NGT 00-050-842** **Cornell University** **6016**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period* *Obligations*  
08/20/1991-08/18/1994 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
S B POPE HQ/F C OWENS 42-Astro Engr

**NGT 00-051-075** **Cornell University** **6024**  
GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period* *Obligations*  
06/08/1993-06/30/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R W ZOBEL HQ/R WHITE 51-Biological Sci

**NGT 00-050-845** **Cornell University** **6017**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period* *Obligations*  
08/15/1991-08/18/1993 FY93: \$0 TOTAL: \$44,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
S W SQUYRES HQ/F C OWENS 13-Physics

**NGT 00-051-147** **Cornell University** **6025**  
GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period* *Obligations*  
07/29/1993-08/31/1994 FY93: \$18,500 TOTAL: \$18,500  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
K COOK HQ/G LESANE 31-Atmos Sci

**NASA'S UNIVERSITY PROGRAM  
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**NGT 00-070-117 Cornell University 6026**  
NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
MINORITY FOCUS PROGRAM  
*Period* *Obligations*  
06/06/1989-05/31/1993 FY93: \$0 TOTAL: \$62,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
M C KELLEY HQ/F C OWENS 45-Elec Engr

**NGT 00-070-217 Cornell University 6027**  
NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
MINORITY FOCUS PROGRAM  
*Period* *Obligations*  
04/30/1991-06/30/1994 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
M C KELLEY HQ/F C OWENS 45-Elec Engr

**NGT 00-070-219 Cornell University 6028**  
NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
MINORITY FOCUS PROGRAM  
*Period* *Obligations*  
06/25/1991-06/30/1994 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
M C KELLEY HQ/F C OWENS 42-Astro Engr

**NGT 00-090-228 Cornell University 6029**  
UNDERGRADUATE STUDENT RESEARCHERS (UMF) PROGRAM  
*Period* *Obligations*  
09/17/1993-08/14/1994 FY93: \$12,000 TOTAL: \$12,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
K PHILLIPS HQ/D K RUSSELL 99-Multi-Discip

**NSG-6020 Cornell University 6030**  
ROCKET INVESTIGATION OF NEUTRAL ATMOSPHERE - IONOSPHERE  
COUPLING AND PLANETARY ELECTRODYNAMIC  
*Period* *Obligations*  
03/01/1978-04/30/1994 FY93: \$75,900 TOTAL: \$3,128,496  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
M C KELLEY GSFC/L J EARLY 19-Phys Sci, NEC  
D T FARLEY ....R H PLESS

**NAGW 468 Hofstra University 6031**  
RADAR MEASUREMENTS OF OCEAN SURFACE WAVES USING THE  
AIRCRAFT TWO FREQUENCY SCATTEROMETER  
*Period* *Obligations*  
05/24/1983-09/30/1993 FY93: \$101,317 TOTAL: \$762,043  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
D E WEISSMAN HQ/G S LAGERLOEF 33-Oceanography  
....W S WILSON

**NGT 00-090-151 Hunter College 6032**  
UNDERGRADUATE STUDENT RESEARCHERS PROGRAM  
*Period* *Obligations*  
11/16/1992-08/14/1994 FY93: \$24,000 TOTAL: \$24,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
G KRASILOVSKY HQ/D K RUSSELL 99-Multi-Discip

**NGT 00-090-053 La Guardia Community College 6033**  
UNDERGRADUATE STUDENT RESEARCHERS PRG  
*Period* *Obligations*  
08/22/1991-08/31/1994 FY93: \$0 TOTAL: \$96,262  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R MCLEOD HQ/B WHITE 49-Engr, NEC

**NAG 2-573 Mt Sinai Sch of Med of The Cuny 6034**  
EFFECTS OF MICROGRAVITY ON VELOCITY STORAGE  
*Period* *Obligations*  
05/04/1989-12/31/1993 FY93: \$235,905 TOTAL: \$970,387  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
B COHEN ARC/J P CONNOLLY 59-Life Sci, NEC  
....R W BALLARD

**NAG 2-706 Mt Sinai Sch of Med of The Cuny 6035**  
VELOCITY STORAGE IN SPACE: ADAPTATION OF OPTOKIN ETIC  
NYSTAGMUS AND AFTER-NYSTAGMUS TO MICROGRAVITY  
*Period* *Obligations*  
06/03/1991-12/31/1993 FY93: \$70,000 TOTAL: \$210,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
B COHEN ARC/C M WINGET 51-Biological Sci  
T RAPHAN

**NAG 2-804 Mt Sinai Sch of Med of The Cuny 6036**  
VELOCITY STORAGE AND MICROGRAVITY: INTERACTION OF VO R  
ADAPTATION AND HABITUATION; DEPENDENCE OF THE ...  
*Period* *Obligations*  
09/18/1992-02/28/1994 FY93: \$77,600 TOTAL: \$155,200  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
B COHEN ARC/D L TOMKO 51-Biological Sci  
T RAPHAN  
M GIZZI

**NAG 1-1238 New York University 6037**  
EVALUATING TEST DATA ADEQUACY AND GENERATING TEST  
CASES FOR SOFTWARE USING STATECHART SPECIFICATION  
*Period* *Obligations*  
03/21/1991-03/19/1994 FY93: \$55,382 TOTAL: \$155,173  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
E WEYUKER LARC/D E ECKHARDT 22-Computer Science

**NAG 1-1448 New York University 6038**  
REAL TIME IDENTIFICATION OF MENTAL STATE FROM  
ELECTROENCEPHALOGRAPHIC SIGNALS  
*Period* *Obligations*  
08/24/1992-11/15/1993 FY93: \$0 TOTAL: \$53,571  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
E R JOHN LARC/A T POPE 69-Psych, NEC  
....J R COMSTOCK

**NAG 2-662 New York University 6039**  
EFFECTS OF SIMULATED WEIGHTLESS ON SPINAL CORD DE  
VELOPMENT  
*Period* *Obligations*  
08/17/1990-05/31/1994 FY93: \$135,800 TOTAL: \$364,466  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R R LLINAS ARC/M L CORCORAN 51-Biological Sci  
K D WALTON ....N G DAUNTON

**NASA'S UNIVERSITY PROGRAM  
NEW YORK (Continued)**

**NAG 3-1414 New York University 6040**  
TWO-PHASE INTERFACES IN WEAK EXTERNAL FIELDS  
*Period* *Obligations*  
01/08/1993-12/31/1993 FY93: \$75,000 TOTAL: \$75,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J K PERCUS LERC/R A WILKINSON 13-Physics

**NAGW 630 New York University 6041**  
PHYSICAL PROPERTIES OF MOLECULAR CLOUDS  
*Period* *Obligations*  
06/01/1984-01/31/1994 FY93: \$62,000 TOTAL: \$587,499  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
A E GLASSGOLD HQ/F C GILLET 11-Astronomy  
....E J WEILER

**NAGW 1697 New York University 6042**  
BIOGEOCHEMICAL MODELING ACROSS MAJOR MASS-EXTINC.  
BOUND.  
*Period* *Obligations*  
02/22/1989-12/31/1991 FY93: \$0 TOTAL: \$89,389  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
M R RAMPINO HQ/J D RUMMEL 54-Env Biology

**NAGW 3675 New York University 6043**  
SYMMETRY ANALYSIS OF MAGELLAN SAR ALTIMETRY AND GR  
AVITY DATA  
*Period* *Obligations*  
07/14/1993-06/30/1994 FY93: \$31,240 TOTAL: \$31,240  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
C STEWART HQ/J T BERGSTRALH 32-Geological Sci

**NCA 2-587 New York University 6044**  
IMAGE FUSION FOR SYNTHETIC VISION  
*Period* *Obligations*  
01/25/1991-07/31/1993 FY93: \$0 TOTAL: \$79,895  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
M PAVEL ARC/A AHUMADA 61-Biol Aspects

**NCC 2-608 New York University 6045**  
THE DYNAMICS OF HYDROPONIC CROPS FOR SIMULATION S  
TUDIES OF CELSS INITIAL REFERENCE CONFIGURATIONS  
*Period* *Obligations*  
05/16/1989-05/31/1993 FY93: \$0 TOTAL: \$240,471  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
T VOLK ARC/R D MACELROY 51-Biological Sci

**NCC 8-24 Niagara University 6046**  
DEVELOPMENT AND TESTING FOR LIGHTNING IMAGING SENSOR  
*Period* *Obligations*  
06/16/1993-06/15/1994 FY93: \$30,788 TOTAL: \$30,788  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
W L BOECK MSFC/R BLAKESLEE 22-Computer Science

**NAG 1-1272 Polytechnic Institute of New York 6047**  
STUDY OF IN-SERVICE DIGITAL AVIONICS SYSTEM FAULT DATA  
ANALYSIS, DATA GATHERING, AND INTERPRETATION  
*Period* *Obligations*  
06/12/1991-06/30/1993 FY93: \$1 TOTAL: \$106,131  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
M L SHOOMAN LARC/F L PITTS 45-Elec Engr  
....C W MEISSNER

**NAG 1-1387 Polytechnic Institute of New York 6048**  
ULTRASONIC MONITORING OF DIRECTIONAL SOLIDIFI CATION  
*Period* *Obligations*  
02/28/1992-03/01/1994 FY93: \$164,409 TOTAL: \$327,570  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
D M SCHLEICH LARC/A L FRIPP 19-Phys Sci, NEC

**NAG 3-1301 Polytechnic Institute of New York 6049**  
DUAL-LINE RAYLEIGH SCATTERING DIAGNOSTICS TECHNIQUE FOR  
THE COMBUSTION OF HYDROCARBON  
*Period* *Obligations*  
10/24/1991-10/31/1993 FY93: \$65,000 TOTAL: \$97,832  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
M V OTUGEN LERC/R G SEASHOLTZ 49-Engr, NEC

**NAG 3-1378 Polytechnic Institute of New York 6050**  
EXPERIMENTAL STUDIES ON SHOCK WAVE-VORTEX INTERACT ION  
IN A SUPERSONIC STREAM  
*Period* *Obligations*  
11/02/1992-10/31/1993 FY93: \$32,779 TOTAL: \$32,779  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
I M KALKHORAN LERC/W R HINGST 41-Aero Engr

**NAG 5-1051 Polytechnic Institute of New York 6051**  
CHAMBER EXPERIMENTS FOR SIMULATING TEH CERTIFICIAL  
PLASMA LAYERS PRODUCED IN THE UPPER ATMOSPHERE  
*Period* *Obligations*  
06/15/1988-09/14/1993 FY93: \$34,500 TOTAL: \$206,605  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
S P KUO GSFC/R F BENSON 13-Physics

**NAG 8-960 Polytechnic Institute of New York 6052**  
DIFFUSION, VISCOSITY AND CRYSTAL GROWTH IN MICRO-  
GRAVOTY  
*Period* *Obligations*  
05/21/1993-05/31/1994 FY93: \$120,000 TOTAL: \$120,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
A S MYERSON MSFC/R L KROES 12-Chemistry  
A IZMAILOV

**NCC 2-172 Polytechnic Institute of New York 6053**  
GEOMETRICAL ACOUSTICS AND TRANSONIC HELICOPTER SOUND  
*Period* *Obligations*  
02/01/1982-10/31/1993 FY93: \$48,764 TOTAL: \$518,383  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
M P ISOM ARC/Y M YU 41-Aero Engr  
....Y H YU

**NAG 1-980 Rensselaer Polytechnic Institute 6054**  
PREPARATION AND POLYMERIZATION OF NEW SILICON-CON-  
TAINING MONOMERS FOR USE IN COATINGS FOR SPACE ST  
*Period* *Obligations*  
04/24/1989-09/30/1993 FY93: \$58,868 TOTAL: \$215,281  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J V CRIVELLO LARC/J W CONNELL 12-Chemistry  
....P M HERGENROTHER

**NASA'S UNIVERSITY PROGRAM  
NEW YORK (Continued)**

**NAG 1-1269 Rensselaer Polytechnic Institute 6055**  
NEURAL NETWORK BASED DECOMPOSITION IN MULTI-LEVEL  
OPTIMAL DESIGN  
*Period* *Obligations*  
05/29/1991-11/30/1993 FY93: \$42,128 TOTAL: \$100,113  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
P HAJELA LARC/J L ROGERS 22-Computer Science  
...../J SOBIESKI

**NAG 1-1356 Rensselaer Polytechnic Institute 6056**  
ADAPTIVE MULTISCALE COMPUTATIONAL TECHNIQUES IN LA  
MINATED COMPOSITES  
*Period* *Obligations*  
12/19/1991-12/11/1993 FY93: \$65,000 TOTAL: \$140,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J FISH LERC/J T WANG 46-Mech Engr  
P L BAEHMANN ...../D D DAVIS JR

**NAG 1-1362 Rensselaer Polytechnic Institute 6057**  
INTERACTION OF TURBULENCE WITH SHOCK WAVES  
*Period* *Obligations*  
01/15/1992-12/31/1992 FY93: \$0 TOTAL: \$30,813  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J D COLE LARC/G L MCANINCH 41-Aero Engr  
V RUSAK ...../W L WILLSHIRE

**NAG 1-1413 Rensselaer Polytechnic Institute 6058**  
PATH PLANNING FOR ROBOTIC TRUSS ASSEMBLY  
*Period* *Obligations*  
03/24/1992-09/22/1993 FY93: \$0 TOTAL: \$35,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
A C SANDERSON LARC/R W WILL 49-Engr, NEC  
G N SARIDIS ...../M D RHODES

**NAG 1-1469 Rensselaer Polytechnic Institute 6059**  
SIMULATION BASED PERFORMANCE ANALYSIS OF A ROBOTIC  
TESTBED CONTROL ARCHITECTURE NLPN 92-1004  
*Period* *Obligations*  
12/22/1992-12/31/1993 FY93: \$75,000 TOTAL: \$75,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J HADDOCK LARC/D L PALUMBO 12-Chemistry

**NAG 1-1520 Rensselaer Polytechnic Institute 6060**  
HOT-DOME ANEMOMETRY FOR FLIGHT MEASUREMENT OF FREE  
STREAM DISTURBANCES NLPN 93-342  
*Period* *Obligations*  
06/07/1993-06/06/1994 FY93: \$10,000 TOTAL: \$10,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
B E THOMPSON LARC/L P YIP 41-Aero Engr

**NAG 2-832 Rensselaer Polytechnic Institute 6061**  
PARALLEL UNSTRUCTURED GRID GENERATION FOR COMPUTAT  
IONAL AEROSCIENCES  
*Period* *Obligations*  
04/02/1993-12/31/1993 FY93: \$73,264 TOTAL: \$73,264  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
M S SHEPPARD ARC/T A LASINSKI 41-Aero Engr  
...../E BARSZCZ

**NAG 3-544 Rensselaer Polytechnic Institute 6062**  
MINORITY ENGINEERING PROGRAM BETWEEN NASA/RPI  
*Period* *Obligations*  
05/20/1984-07/28/1994 FY93: \$75,000 TOTAL: \$710,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
N BURNETT LARC/R F LAWRENCE 49-Engr, NEC

**NAG 3-1196 Rensselaer Polytechnic Institute 6063**  
NEURAL NETWORK APPLICATIONS IN STRUCTURAL MECHANICS  
AND DESIGN  
*Period* *Obligations*  
08/28/1990-11/30/1993 FY93: \$44,473 TOTAL: \$154,045  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
P HAJELA LERC/L BERKE 41-Aero Engr

**NAG 3-1375 Rensselaer Polytechnic Institute 6064**  
NON-INTRUSIVE DIAGNOSTIC DEVELOPMENT FOR A PLANAR SHEAR  
LAYER  
*Period* *Obligations*  
12/01/1992-08/31/1993 FY93: \$24,000 TOTAL: \$24,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
H T NAGAMATSN LERC/C J MAREK 41-Aero Engr  
L N MYRABO

**NAG 3-1399 Rensselaer Polytechnic Institute 6065**  
AN EXPERIMENTAL STUDY OF THE VAPOR BUBBLE THERMOSY  
PHON BASED ON AUGMENTED YOUNG-LAPLACE EQUATION  
*Period* *Obligations*  
01/15/1993-11/30/1993 FY93: \$142,896 TOTAL: \$142,896  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
P C WAYNER LERC/J A PLATT 46-Mech Engr  
J L PLAWSKY

**NAG 3-1400 Rensselaer Polytechnic Institute 6066**  
THE ANALYSIS OF PHASE DISTRIBUTION PHENOMENA IN MI  
CROGRAVITY ENVIRONMENTS  
*Period* *Obligations*  
01/15/1993-11/30/1993 FY93: \$119,438 TOTAL: \$119,438  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R T LAHEY LERC/J B MCQUILLEN 49-Engr, NEC

**NAG 3-1413 Rensselaer Polytechnic Institute 6067**  
GLOBAL INSTABILITY AND PATTERN FORMATION IN BINARY A LLOY  
SOLIDIFICATION  
*Period* *Obligations*  
01/27/1993-04/30/1994 FY93: \$85,000 TOTAL: \$85,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J D COLE LERC/A CHAIT 47-Materials Engr  
...../V PINES

**NAG 5-1631 Rensselaer Polytechnic Institute 6068**  
IRAS STUDIES OF INDIVIDUAL MOLECULAR CLOUDS IN THE LMC  
AND SMC  
*Period* *Obligations*  
06/12/1991-06/14/1993 FY93: \$0 TOTAL: \$87,300  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
M L KUTNER GSFC/D WEST 11-Astronomy

**NASA'S UNIVERSITY PROGRAM  
NEW YORK (Continued)**

**NAG 8-864 Rensselaer Polytechnic Institute 6069**  
KINETICS OF DIFFUSIONAL DROPLET GROWTH LIQUID/ LIQUID TWO  
PHASE

Period	Obligations	
12/21/1990-09/20/1993	FY93: \$35,000	TOTAL: \$56,500
Prin. Invest.	NASA Tech. Officer	CASE Category
M E GLIKSMAN	MSFC/D FRAZIER	31-Atmos Sci
	....B FAREMIRE	

**NAGW 3144 Rensselaer Polytechnic Institute 6077**  
THE ORIGIN AND EVOLUTION OF DUST IN INTERSTELLAR A ND  
CIRCUMSTELLAR ENVIRONMENTS

Period	Obligations	
08/04/1992-08/31/1994	FY93: \$0	TOTAL: \$105,789
Prin. Invest.	NASA Tech. Officer	CASE Category
D WHITTET	HQ/G R RIEGLER	11-Astronomy

**NAG 8-952 Rensselaer Polytechnic Institute 6070**  
CRYSTAL GROWTH STUDY

Period	Obligations	
02/10/1993-01/31/1994	FY93: \$89,832	TOTAL: \$89,832
Prin. Invest.	NASA Tech. Officer	CASE Category
A G OSTROGORSKY	MSFC/D C GILLIES	47-Materials Engr

**NAS 3-25368 Rensselaer Polytechnic Institute 6078**  
ISOTHERMAL DENDRITIC GROWTH

Period	Obligations	
12/15/1988-04/15/1998	FY93: \$300,000	TOTAL: \$1,423,000
Prin. Invest.	NASA Tech. Officer	CASE Category
M E GLICKSMAN	LERC/E A WINSA	47-Materials Engr
	....G A KRAFT	

**NAGW 642 Rensselaer Polytechnic Institute 6071**  
SPEC REFLEC PROP OF METEORITIC MIN ASSEMB-INT ASTEROID  
MAT

Period	Obligations	
07/01/1984-09/30/1993	FY93: \$63,000	TOTAL: \$607,160
Prin. Invest.	NASA Tech. Officer	CASE Category
M J GAFFEY	HQ/J R UNDERWOOD	32-Geological Sci
	....J M BOYCE	

**NAS 8-38143 Rensselaer Polytechnic Institute 6079**  
VAPOR TRANSPORT CRYSTAL GROWTH

Period	Obligations	
10/17/1990-09/30/1993	FY93: \$109,000	TOTAL: \$782,000
Prin. Invest.	NASA Tech. Officer	CASE Category
H WEIDEMEIER	MSFC/L P JETER	99-Multi-Discip

**NAGW 1333 Rensselaer Polytechnic Institute 6072**  
CENTER FOR INTELLIGENT ROBOTIC SYSTEM FOR SPACE EXP.

Period	Obligations	
07/15/1988-10/31/1993	FY93: \$63,960	TOTAL: \$5,487,292
Prin. Invest.	NASA Tech. Officer	CASE Category
G N SARIDIS	HQ/M D MONTEMERLO	49-Engr, NEC

**NAS 8-39723 Rensselaer Polytechnic Institute 6080**  
VAPOR TRANSPORT CRYSTAL GROWTH OF HGCDTE IN  
MICROGRAVITY

Period	Obligations	
06/24/1993-12/23/1993	FY93: \$93,104	TOTAL: \$93,104
Prin. Invest.	NASA Tech. Officer	CASE Category
H WIEDEMER	MSFC/L JETER	99-Multi-Discip

**NAGW 2316 Rensselaer Polytechnic Institute 6073**  
PROMOTING SPACE TECHNOLOGY THROUGH PRE-SERVICE AND  
IN-SERVICE EXPERIENCES IN ELEMENTARY AND MIDDLE SC

Period	Obligations	
11/07/1990-08/31/1992	FY93: \$0	TOTAL: \$75,000
Prin. Invest.	NASA Tech. Officer	CASE Category
L RUBENFELD	HQ/E ANDERSON	99-Multi-Discip

**NCC 2-766 Rensselaer Polytechnic Institute 6081**  
DEFINITION OF TITAN'S AEROSOL-ATMOSPHERIC SIMULATI ON  
EXPERIMENTS TO BE DONE USING MCPF AEROSOL ....

Period	Obligations	
07/02/1992-03/31/1993	FY93: \$0	TOTAL: \$21,400
Prin. Invest.	NASA Tech. Officer	CASE Category
J P FERRIS	ARC/G C CARLE	59-Life Sci, NEC

**NAGW 2781 Rensselaer Polytechnic Institute 6074**  
A LABORATORY INVESTIGATION OF SOME PHOTOCHEMICAL P  
ROCESSES OF TITAN

Period	Obligations	
12/13/1991-10/31/1993	FY93: \$110,000	TOTAL: \$220,000
Prin. Invest.	NASA Tech. Officer	CASE Category
J P FERRIS	HQ/J D RUMMEL	12-Chemistry

**NGT 00-010-000 Rensselaer Polytechnic Institute 6082**  
NGT-10000/RENSSELAER POLY INST NY/INTELLIGENT CONT ROL  
FOR DUAL ARM MANIPULATORS

Period	Obligations	
12/18/1992-10/31/1993	FY93: \$286,000	TOTAL: \$286,000
Prin. Invest.	NASA Tech. Officer	CASE Category
A DESROCHERS	HQ/R J HAYDUK	49-Engr, NEC

**NAGW 2817 Rensselaer Polytechnic Institute 6075**  
PROBING INFRARED SOURCES BY COMPUTER MODELING

Period	Obligations	
01/03/1992-11/30/1994	FY93: \$65,000	TOTAL: \$130,000
Prin. Invest.	NASA Tech. Officer	CASE Category
C M LEUNG	HQ/L J CAROFF	11-Astronomy

**NGT 00-050-418 Rensselaer Polytechnic Institute 6083**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM

Period	Obligations	
09/27/1989-04/30/1992	FY93: \$0	TOTAL: \$40,000
Prin. Invest.	NASA Tech. Officer	CASE Category
L K LAUDERBAUGH	HQ/F C OWENS	46-Mech Engr

**NAGW 3001 Rensselaer Polytechnic Institute 6076**  
THEORY OF GRAIN ALIGNMENT IN MOLECULAR CLOUDS

Period	Obligations	
03/11/1992-04/30/1994	FY93: \$34,926	TOTAL: \$69,926
Prin. Invest.	NASA Tech. Officer	CASE Category
W G ROBERGE	HQ/L J CAROFF	11-Astronomy

**NGT 00-050-430 Rensselaer Polytechnic Institute 6084**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM

Period	Obligations	
08/15/1989-06/30/1992	FY93: \$0	TOTAL: \$62,000
Prin. Invest.	NASA Tech. Officer	CASE Category
L J SCHOWALTER	HQ/F C OWENS	13-Physics

**NASA'S UNIVERSITY PROGRAM  
NEW YORK (Continued)**

**NGT 00-050-601 Rensselaer Polytechnic Institute 6085**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
07/24/1990-12/31/1991 FY93: \$0 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J P FERRIS HQ/F C OWENS 12-Chemistry

**NGT 00-050-602 Rensselaer Polytechnic Institute 6086**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
07/06/1990-08/31/1993 FY93: \$0 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J P FERRIS HQ/F C OWENS 12-Chemistry

**NGT 00-050-918 Rensselaer Polytechnic Institute 6087**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
06/29/1992-06/30/1994 FY93: \$22,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J P FERRIS HQ/J ALEXANDER 12-Chemistry

**NGT 00-051-049 Rensselaer Polytechnic Institute 6088**  
GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
07/14/1993-08/31/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
L N MYRABO LERC/F MONTEGANI 41-Aero Engr  
H T NAGAMATSU

**NGT 00-051-113 Rensselaer Polytechnic Institute 6089**  
GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
07/14/1993-08/31/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
Z RUSAK LARC/E J PRIOR 41-Aero Engr

**NGT 00-051-167 Rensselaer Polytechnic Institute 6090**  
GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
06/22/1993-08/31/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D W SCHWENDEMAN HQ/P HUNTER 21-Mathematics

**NGT 00-070-272 Rensselaer Polytechnic Institute 6091**  
NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
MINORITY FOCUS PROGRAM  
*Period Obligations*  
08/05/1992-06/30/1994 FY93: \$22,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
H STEPHANON GSFC/G SOFFEN 45-Elec Engr

**NGT 00-070-334 Rensselaer Polytechnic Institute 6092**  
NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
MINORITY FOCUS PROGRAM  
*Period Obligations*  
07/01/1993-06/30/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
B SZYMANSKI HQ/D K RUSSELL 22-Computer Science

**NGT 00-090-131 Rensselaer Polytechnic Institute 6093**  
UNDERGRADUATE STUDENT RESEARCHERS PROGRAM (UMF)  
*Period Obligations*  
09/26/1992-08/14/1994 FY93: \$24,000 TOTAL: \$24,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
N BURNETT HQ/D K RUSSELL 99-Multi-Discip

**NGT 00-090-132 Rensselaer Polytechnic Institute 6094**  
UNDERGRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
09/24/1992-08/14/1994 FY93: \$12,000 TOTAL: \$24,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
N BURNETT HQ/D K RUSSELL 99-Multi-Discip

**NGT 00-090-133 Rensselaer Polytechnic Institute 6095**  
UNDERGRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
09/26/1992-08/14/1994 FY93: \$12,000 TOTAL: \$24,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D TUTT HQ/D K RUSSELL 99-Multi-Discip

**NGT 00-090-134 Rensselaer Polytechnic Institute 6096**  
UNDERGRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
09/24/1992-08/14/1994 FY93: \$12,000 TOTAL: \$24,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
N BURNETT HQ/D K RUSSELL 99-Multi-Discip

**NGT 00-090-188 Rensselaer Polytechnic Institute 6097**  
UNDERGRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
08/27/1993-08/14/1994 FY93: \$12,000 TOTAL: \$12,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
N BURNETT HQ/D RUSSELL 99-Multi-Discip

**NGT 00-090-189 Rensselaer Polytechnic Institute 6098**  
UNDERGRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
08/27/1993-08/14/1994 FY93: \$12,000 TOTAL: \$12,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
N BURNETT HQ/D K RUSSELL 99-Multi-Discip

**NAG 1-1147 Rochester Institute of Technology 6099**  
HIGH POWER DIODE LASER MASTER OSCILLATOR-POWER AMP  
LIFIER DEVICE PHYSICS AND POWER SCALING.  
*Period Obligations*  
05/21/1990-06/30/1993 FY93: \$0 TOTAL: \$175,917  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J R ANDREWS LARC/G L SCHUSTER 13-Physics  
P MOUROULIS ....E J CONWAY

**NAG 3-1153 Rochester Institute of Technology 6100**  
COMPUTATIONAL AND EXPERIMENTAL INVESTIGATION OF SPAC E  
TRANFER VEH ENG TURBOPUMP DESIGN FOR DEEP-THROT  
*Period Obligations*  
03/13/1990-04/14/1993 FY93: \$38,330 TOTAL: \$162,224  
*Prin. Invest. NASA Tech. Officer CASE Category*  
A OGUT LERC/J A HEMMINGER 49-Engr, NEC  
....R J CAPALDI





**NASA'S UNIVERSITY PROGRAM  
NEW YORK (Continued)**

**NAGW 3731 State Univ of New York - Albany 6115**  
STUDIES OF THE NIGHTSIDE IONOSPHERES-THERMOSPHERES OF VENUS AND MARS  
*Period* *Obligations*  
09/03/1993-07/31/1994 FY93: \$45,000 TOTAL: \$45,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J L FOX HQ/J T BERGSTRALH 32-Geological Sci

**NAS 1-18155 State Univ of New York - Albany 6116**  
SCIENCE TEAM SUPPORT FOR ERBE  
*Period* *Obligations*  
01/10/1986-09/30/1993 FY93: \$0 TOTAL: \$470,383  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R D CESS LARC/J L COOPER 31-Atmos Sci

**NAS 1-18942 State Univ of New York - Albany 6117**  
SAGE III SCIENCE SUPPORT - P.I. - DR. V. MOHNEN  
*Period* *Obligations*  
01/31/1990-01/31/1995 FY93: \$19,950 TOTAL: \$44,800  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
V MOHNEN LARC/G L MADDREA 31-Atmos Sci  
....L R MCMASTER

**NAS 5-30775 State Univ of New York - Albany 6118**  
EOS INVESTIGATION  
*Period* *Obligations*  
04/11/1990-02/14/1993 FY93: \$0 TOTAL: \$125,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J E MOLINARI GSFC/G SOFFEN 31-Atmos Sci

**NAS 8-39926 State Univ of New York - Albany 6119**  
ADVANCE HIGH BRILLIANCE X-RAY SOURCE  
*Period* *Obligations*  
04/01/1993-01/31/1994 FY93: \$100,000 TOTAL: \$100,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
W E GIBSON MSFC/T Y MILLER 13-Physics

**NAS 9-16042 State Univ of New York - Albany 6120**  
LIFE SCIENCE FLIGHT EXPERIMENT  
*Period* *Obligations*  
01/17/1980-12/01/1993 FY93: \$300,000 TOTAL: \$2,921,020  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
L FARHI JSC/P LAFFERTY 59-Life Sci, NEC

**NCA 2-542 State Univ of New York - Albany 6121**  
THEORETICAL AND PRACTICAL EVALUATIONS OF AEROSOL SAMPLING SYSTEMS ON RESEARCH  
*Period* *Obligations*  
07/20/1990-12/31/1993 FY93: \$0 TOTAL: \$39,502  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
M A KRITZ ARC/R F PUESCHEL 31-Atmos Sci

**NCC 1-135 State Univ of New York - Albany 6122**  
COOPERATIVE STUDY OF THE ARCTIC BOUNDARY LAYER  
*Period* *Obligations*  
02/01/1989-12/31/1992 FY93: \$0 TOTAL: \$40,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
D R FITZJARRALD LARC/J A RITTER 31-Atmos Sci

**NCC 2-395 State Univ of New York - Albany 6123**  
DEVELOPMENT OF A HIGH ALTITUDE GAS SAMPLER AND AERCOLLECTOR FOR A TITAN PROBE GAS CHROMATOGRAPH  
*Period* *Obligations*  
12/15/1985-12/14/1993 FY93: \$100,726 TOTAL: \$331,490  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
T W SCATTERGOOD ARC/G C CARLE 59-Life Sci, NEC

**NCC 2-502 State Univ of New York - Albany 6124**  
USE OF RADON AND COSMOGENIC RADIONUCLIDES AS INDIC OF EXCHANGE BETWEEN TROPOSPHERE AND STRATOSPHERE  
*Period* *Obligations*  
10/01/1987-01/31/1994 FY93: \$48,050 TOTAL: \$269,328  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
M A KRITZ ARC/S WEGENER 31-Atmos Sci  
....P B RUSSELL

**NCC 3-284 State Univ of New York - Albany 6125**  
CHEMICAL VAPOR DEPOSITION OF TITANIUM AND ITS ALLOYS FOR ADVANCED AEROSPACE AND MICROELECTRONIC APPLICATIONS  
*Period* *Obligations*  
12/18/1992-11/30/1993 FY93: \$49,948 TOTAL: \$49,948  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
A E KOLOYEROS LERC/A F HEPP 13-Physics

**NAG 1-978 State Univ of New York - Binghamton 6126**  
ACOUSTIC FATIGUE LIFE PREDICTION FOR NONLINEAR STRUCTURES WITH MULTIPLE RESONANT MODES  
*Period* *Obligations*  
04/28/1989-06/30/1992 FY93: \$0 TOTAL: \$168,163  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R N MILES LARC/C A POWELL 46-Mech Engr

**NAG 1-1099 State Univ of New York - Binghamton 6127**  
AERODYNAMIC GENERATION OF SOUND - FDP  
*Period* *Obligations*  
02/14/1990-10/08/1993 FY93: \$17,696 TOTAL: \$153,812  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J F GEER LARC/J C HARDIN 13-Physics

**NAG 1-1406 State Univ of New York - Binghamton 6128**  
EXPERIMENTAL METHODS FOR ACOUSTIC FATIGUE RESEARCH  
*Period* *Obligations*  
03/04/1992-03/31/1994 FY93: \$63,921 TOTAL: \$104,501  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R N MILES LARC/S A RIZZI 41-Aero Engr  
....C A POWELL

**NAG 3-1316 State Univ of New York - Binghamton 6129**  
STUDY OF THE PERFORMANCE OF A WORM GEARING TRANSMISSION ENHANCED BY HYDROSTATIC LUBRICATION  
*Period* *Obligations*  
01/13/1992-01/31/1994 FY93: \$20,836 TOTAL: \$62,638  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
D C SUN LERC/D E BREWE 46-Mech Engr  
Y QIN ....G A BOBULA

**NASA'S UNIVERSITY PROGRAM  
NEW YORK (Continued)**

**NAG 3-1464 State Univ of New York - Binghamton 6130**  
MODELING DEVELOPMENT - ASSESSMENT AND STRATEGY  
*Period Obligations*  
02/16/1993-02/09/1994 FY93: \$68,507 TOTAL: \$68,507  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D C HOPKINS LERC/R C CULL 45-Elec Engr

**NAG 9-307 State Univ of New York - Binghamton 6131**  
STERILIZATION SPACE STATION WATER LOOP  
*Period Obligations*  
08/01/1988-05/01/1992 FY93: \$0 TOTAL: \$105,431  
*Prin. Invest. NASA Tech. Officer CASE Category*  
G E JANAUER JSC/R L SAUER 51-Biological Sci  
....D L PIERSON

**NAGW 2699 State Univ of New York - Binghamton 6132**  
THERMAL INFRARED REMOTE SENSING AND BIOSPHERIC PROCESSES  
*Period Obligations*  
08/20/1991-04/30/1994 FY93: \$66,757 TOTAL: \$190,093  
*Prin. Invest. NASA Tech. Officer CASE Category*  
N S GOEL HQ/G ASRAR 39-Env Sci, NEC  
J M NORMAN ....D E WICKLAND

**NAGW 3003 State Univ of New York - Binghamton 6133**  
OCEAN TIDE MODELS FOR SATELLITE GEODESY AND EARTH ROTATION  
*Period Obligations*  
03/23/1992-12/31/1993 FY93: \$67,000 TOTAL: \$132,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
S R DICKMAN HQ/R E MURPHY 32-Geological Sci  
....D M BUTLER

**NGT 00-050-556 State Univ of New York - Binghamton 6134**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
08/20/1990-05/31/1992 FY93: \$0 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
H PATTEE HQ/F C OWENS 99-Multi-Discip

**NGT 00-050-756 State Univ of New York - Binghamton 6135**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
05/21/1991-05/31/1994 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
G KLIR HQ/F C OWENS 21-Mathematics

**NAG 1-1122 State Univ of New York - Buffalo 6136**  
LARGE EDDY SIMULATORS AND DIRECT NUMERICAL SIMULATORS OF HIGH SPEED TURBULANT REACTING FLOWS  
*Period Obligations*  
04/19/1990-07/31/1994 FY93: \$65,000 TOTAL: \$245,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
P GIBI LARC/J P DRUMMOND 46-Mech Engr

**NAG 1-1342 State Univ of New York - Buffalo 6137**  
METHODS AND PRINCIPLES FOR DETERMINING TASK DEPENDENT INTERFACE CONTENT  
*Period Obligations*  
09/20/1991-09/16/1993 FY93: \$87,660 TOTAL: \$206,829  
*Prin. Invest. NASA Tech. Officer CASE Category*  
V L SHALIN LARC/K H ABBOTT 69-Psych, NEC  
....P C SCHUTTE

**NAG 3-862 State Univ of New York - Buffalo 6138**  
STATISTICAL FRACTURE ANALYSIS OF COMPOSITE MATERIALS  
*Period Obligations*  
01/22/1988-10/31/1993 FY93: \$40,000 TOTAL: \$341,149  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R C WETHERHOLD LERC/B GROSS 47-Materials Engr

**NAG 3-962 State Univ of New York - Buffalo 6139**  
CLOSURE FORMULATION SYSTEM FOR TURBOMACHINERY  
*Period Obligations*  
12/12/1988-11/30/1993 FY93: \$0 TOTAL: \$92,610  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D B TAULBEE LERC/J J ADAMCZYK 41-Aero Engr

**NAG 3-1011 State Univ of New York - Buffalo 6140**  
TIME ACCURATE SIMULATIONS OF COMPRESSIBLE SHEAR FLOWS  
*Period Obligations*  
03/14/1989-12/31/1992 FY93: \$41 TOTAL: \$59,959  
*Prin. Invest. NASA Tech. Officer CASE Category*  
P GIVI LERC/R W CLAUS 41-Aero Engr

**NAG 3-1019 State Univ of New York - Buffalo 6141**  
ELECTRICAL INSULATION FOR HIGH TEMPERATURE SPACE ENVIRONMENT  
*Period Obligations*  
03/28/1989-09/30/1992 FY93: \$544 TOTAL: \$158,744  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J R LAGHARI LERC/I MYERS 45-Elec Engr  
....S DOMITZ

**NAG 3-1345 State Univ of New York - Buffalo 6142**  
WIRING INSULATION FOR SPACE POWER APPLICATIONS  
*Period Obligations*  
04/16/1992-12/31/1993 FY93: \$65,000 TOTAL: \$85,052  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J R LAGHARI LERC/S DOMITZ 45-Elec Engr  
....J DICKMAN

**NAG 5-1627 State Univ of New York - Buffalo 6143**  
ANALYSIS OF FIFE SURFACE RADIANCE DATA FOR INTEFER ENCE OF BIOLOGICAL PROCESSES  
*Period Obligations*  
06/12/1991-06/14/1993 FY93: \$0 TOTAL: \$65,500  
*Prin. Invest. NASA Tech. Officer CASE Category*  
N GOEL GSFC/F G HALL 39-Env Sci, NEC

**NAG 5-2181 State Univ of New York - Buffalo 6144**  
A MINIMUM MODEL ERROR APPROACH TO ATTITUDE DETERMINATION  
*Period Obligations*  
01/14/1993-01/14/1994 FY93: \$45,918 TOTAL: \$45,918  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D J MOOK GSFC/T H STENGLE 42-Astro Engr  
....K GALAL

**NASA'S UNIVERSITY PROGRAM  
NEW YORK (Continued)**

**NAG 5-2273 State Univ of New York - Buffalo 6145**  
VOLCANO MONITORING FOR ERUPTION PREDICTION AND FOR  
ECASTING USING THE GLOBAL POSITIONING SYSTEM  
*Period* *Obligations*  
05/26/1993-05/31/1994 FY93: \$25,000 TOTAL: \$25,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
BURSIK GSFC/G BILLS 32-Geological Sci

**NAGW 966 State Univ of New York - Buffalo 6146**  
PARTICIPATION IN THE HYPERSONIC TRAINING/RESEARCH  
PROGRAM  
*Period* *Obligations*  
06/01/1986-10/31/1992 FY93: \$0 TOTAL: \$1,087,573  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
W GEORGE HQ/S M WANDER 13-Physics  
W J RAE ....R A GRAVES  
M S HOLDEN

**NAGW 3630 State Univ of New York - Buffalo 6147**  
GRAVITY INDUCED ALTERATION IN DIFFERENTIATION OF A LL TYPE  
IN CHARA  
*Period* *Obligations*  
05/28/1993-03/31/1994 FY93: \$55,000 TOTAL: \$55,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
M A BISSON HQ/T W HALSTEAD 51-Biological Sci

**NGT 00-050-689 State Univ of New York - Buffalo 6148**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period* *Obligations*  
11/09/1990-09/30/1992 FY93: \$0 TOTAL: \$44,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
D J INMAN HQ/F C OWENS 41-Aero Engr

**NGT 00-050-691 State Univ of New York - Buffalo 6149**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period* *Obligations*  
06/05/1991-08/14/1992 FY93: \$1 TOTAL: \$34,281  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
M F SHERIDAN HQ/F C OWENS 32-Geological Sci

**NGT 00-050-992 State Univ of New York - Buffalo 6150**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period* *Obligations*  
08/04/1992-06/30/1994 FY93: \$22,000 TOTAL: \$44,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
V SHALIN LARC/E J PRIOR 49-Engr, NEC

**NGT 00-070-333 State Univ of New York - Buffalo 6151**  
NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
MINORITY FOCUS PROGRAM  
*Period* *Obligations*  
06/29/1993-06/30/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
D J MOOK HQ/D K RUSSELL 46-Mech Engr

**NAG 1-1264 State Univ of New York - Stony Brook 6152**  
THE SURFACE RADIATION BUDGET AND CLOUD CLIMATE  
INTERACTIONS AS A PART OF CERES  
*Period* *Obligations*  
04/29/1991-04/30/1994 FY93: \$115,000 TOTAL: \$199,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R D CESS LARC/B A WIELICKI 31-Atmos Sci  
....J W YOUNGBLOOD

**NAG 1-1354 State Univ of New York - Stony Brook 6153**  
GROUND-BASED MEASUREMENT OF STRATOSPHERIC C10, H2O N2O  
AND O3 IN SUPPORT OF THE UARS MISSION  
*Period* *Obligations*  
12/19/1991-06/11/1994 FY93: \$96,000 TOTAL: \$247,932  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R DE ZAFRA LARC/J G WELLS 31-Atmos Sci

**NAG 3-1526 State Univ of New York - Stony Brook 6154**  
DEVELOPMENT OF A FIBER OPTIC COMPRESSOR BLADE SENS OR  
*Period* *Obligations*  
09/08/1993-09/07/1994 FY93: \$38,000 TOTAL: \$38,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
H S DHADWALL LERC/A KURKOV 49-Engr, NEC  
....O MEHMED

**NAG 5-1228 State Univ of New York - Stony Brook 6155**  
STRUCTURE NEARY UNIVERSE TRACED BY TRAS GALAXIES  
*Period* *Obligations*  
07/27/1989-08/31/1992 FY93: \$0 TOTAL: \$110,971  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
A YAHIL GSFC/D WEST 11-Astronomy

**NAG 5-1231 State Univ of New York - Stony Brook 6156**  
INFRARED EMISSION MOLECULAR CLOUDS NEAR ZETA  
*Period* *Obligations*  
07/27/1989-08/31/1993 FY93: \$0 TOTAL: \$85,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
P M SOLOMON GSFC/D WEST 11-Astronomy

**NAG 5-1594 State Univ of New York - Stony Brook 6157**  
1) GLOBAL ASPECTS OF LOW MARS STAR FORMATION IN TH2)  
LOW MASS STARS IN ASSOCIATION TO THE BIG PICTU  
*Period* *Obligations*  
05/09/1991-05/31/1994 FY93: \$40,000 TOTAL: \$80,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
F M WALTER GSFC/R PETRE 11-Astronomy

**NAG 5-1663 State Univ of New York - Stony Brook 6158**  
THE DIRTY B STARS OF TAURUS-AURIZA AND INFRARED AN ALYSIS  
OF RADIO SELECTED ULTRACOMPACT H11 REGIONS  
*Period* *Obligations*  
06/24/1991-06/30/1993 FY93: \$0 TOTAL: \$59,400  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
F M WALTER GSFC/D WEST 11-Astronomy

**NASA'S UNIVERSITY PROGRAM  
NEW YORK (Continued)**

**NAG 5-1699 State Univ of New York - Stony Brook 6159**  
DEVELOPMENT AND EVALUATION OF 4-D DATA ASSIMILATION  
FOR TRMM SCIENCE  
*Period* *Obligations*  
08/15/1991-08/14/1994 FY93: \$33,000 TOTAL: \$155,511  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
M A GELLER GSFC/W TAO 31-Atmos Sci

**NAG 5-1862 State Univ of New York - Stony Brook 6160**  
THREE DIMENSIONAL STRUCTURES OF THE ATMOSPHERES OF  
COOL STARS  
*Period* *Obligations*  
01/16/1992-11/30/1993 FY93: \$74,643 TOTAL: \$144,643  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
F M WALTER GSFC/A SMITH 11-Astronomy

**NAG 5-1874 State Univ of New York - Stony Brook 6161**  
ATMOSPHERIC STRUCTURES IN NAKED T TAURI STARS  
*Period* *Obligations*  
01/23/1992-01/31/1994 FY93: \$25,000 TOTAL: \$67,672  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
F M WALTER GSFC/R PETRE 11-Astronomy

**NAG 5-1962 State Univ of New York - Stony Brook 6162**  
FIFTH EPOCH DOPPLER IMAGING OBSERVATIONS OF AR  
LACERTAE  
*Period* *Obligations*  
04/03/1992-04/14/1993 FY93: \$0 TOTAL: \$17,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
F M WALTER GSFC/D WEST 11-Astronomy

**NAG 5-2002 State Univ of New York - Stony Brook 6163**  
INFRARED ANALYSIS OF RADIO SELECTED ULTRACOMPACT H II  
REGIONS IN GALACTIC PLANE G  
*Period* *Obligations*  
07/01/1992-06/30/1993 FY93: \$0 TOTAL: \$36,400  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
P M SOLOMON GSFC/D WEST 11-Astronomy

**NAG 8-860 State Univ of New York - Stony Brook 6164**  
A STUDY OF A LARGE TELESCOPE  
*Period* *Obligations*  
12/05/1990-12/03/1991 FY93: \$976 TOTAL: \$19,987  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R F KNACKE MSFC/M E NEIN 11-Astronomy

**NAGW 665 State Univ of New York - Stony Brook 6165**  
CHEM OF VIBRATIONALLY/ELECT EXCITED SPECIES IN  
PLANETARY  
*Period* *Obligations*  
11/01/1984-12/31/1992 FY93: \$0 TOTAL: \$197,692  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J FOX HQ/J BERGSTALH 11-Astronomy  
...../W L QUAIDE

**NAGW 1107 State Univ of New York - Stony Brook 6166**  
DYNAMICAL PROBLEMS IN THE SOLAR SYSTEM  
*Period* *Obligations*  
06/01/1987-12/31/1993 FY93: \$60,600 TOTAL: \$298,850  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J LISSAUER HQ/J R UNDERWOOD 32-Geological Sci  
...../J M BOYCE

**NAGW 1238 State Univ of New York - Stony Brook 6167**  
LABORATORY SPECTROSCOPIC MEASUREMENTS  
*Period* *Obligations*  
12/07/1987-12/31/1993 FY93: \$83,516 TOTAL: \$464,132  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
P VARANASI HQ/M J KURYLO 39-Env Sci, NEC  
...../R T WATSON

**NAGW 1529 State Univ of New York - Stony Brook 6168**  
CELLS EMBRYOS AND DEVELOPMENT IN SPACE  
*Period* *Obligations*  
11/28/1988-10/31/1993 FY93: \$80,000 TOTAL: \$445,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
A D KRIKORIAN HQ/T HALSTEAD 59-Life Sci, NEC

**NAGW 1560 State Univ of New York - Stony Brook 6169**  
TESTING AND OPERATION OF A MILLIMETER WAVE CIO RECEIVES  
*Period* *Obligations*  
04/26/1989-12/15/1993 FY93: \$231,112 TOTAL: \$979,663  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
P M SOLOMON HQ/M J KURYLO 31-Atmos Sci  
...../R T WATSON

**NAGW 1894 State Univ of New York - Stony Brook 6170**  
QUANTITATIVE SPECTROSCOPIC MEASUREMENTS ON THE PRI  
NCIPAL CONSTITUENTS IN PLANETARY ATMOSPHERES  
*Period* *Obligations*  
01/24/1990-09/30/1993 FY93: \$69,668 TOTAL: \$257,313  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
P VARANASI HQ/J T BERGSTALH 11-Astronomy

**NAGW 2182 State Univ of New York - Stony Brook 6171**  
NAGW-2182/STATE UNIV NY/THE MEASUREMENT OF STRATOS  
PHERIC TRACE GASES BY MM-WAVE EMISSION SPECTROSCO  
*Period* *Obligations*  
07/09/1990-03/31/1994 FY93: \$141,196 TOTAL: \$760,400  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R DE ZAFRA HQ/M J KURYLO 31-Atmos Sci

**NAGW 2194 State Univ of New York - Stony Brook 6172**  
INFRARED SPECTROSCOPY OF JUPITER AND SATURN  
*Period* *Obligations*  
08/09/1990-09/09/1992 FY93: \$0 TOTAL: \$112,987  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R KNACKE HQ/J RAHE 11-Astronomy

**NAGW 2238 State Univ of New York - Stony Brook 6173**  
NAGW-2238/STATE UNIV NY/EXOSPHERIC PROCESSES AND  
ESCAPE OF SPECIES FROM THE MARTIAN ATMOSPHERE  
*Period* *Obligations*  
03/06/1991-03/31/1994 FY93: \$35,000 TOTAL: \$116,572  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J L FOX HQ/J M BOYCE 32-Geological Sci

**NASA'S UNIVERSITY PROGRAM  
NEW YORK (Continued)**

**NAGW 2334 State Univ of New York - Stony Brook 6174**  
NAGW-2334/STATE UNIV NY @ STONY BROOK/INTERSTELLAR AND SOLAR SYSTEM CHEMISTRY

Period	Obligations	
06/13/1991-10/31/1993	FY93: \$29,493	TOTAL: \$109,736
Prin. Invest.	NASA Tech. Officer	CASE Category
R F KNACKE	HQ/J A NUTH	19-Phys Sci, NEC

**NAG10-70 State Univ of New York - Stony Brook 6181**  
CHROMOSOMES/PLANT CELL DIVISION IN SPACE CHROMEX-2

Period	Obligations	
03/26/1990-11/25/1994	FY93: \$313,657	TOTAL: \$658,968
Prin. Invest.	NASA Tech. Officer	CASE Category
A D KRIKORIAN	KSC/W M KNOT	51-Biological Sci

**NAGW 2483 State Univ of New York - Stony Brook 6175**  
ANALYSIS OF EUV DAYGLOWS SPECTRA OF TRITON, TITAN, AND EARTH

Period	Obligations	
07/10/1991-03/31/1994	FY93: \$38,289	TOTAL: \$73,071
Prin. Invest.	NASA Tech. Officer	CASE Category
J L FOX	HQ/W L QUAIDE	19-Phys Sci, NEC

**NAG10-99 State Univ of New York - Stony Brook 6182**  
GRAVITY INDUCED ALTERATION IN DIFFERENTIATION OF CELL TYPE IN CHARA

Period	Obligations	
02/19/1992-09/25/1993	FY93: \$0	TOTAL: \$55,000
Prin. Invest.	NASA Tech. Officer	CASE Category
M A BISSON	KSC/W M KNOTT	51-Biological Sci
M J HOLLINGSWORTH		

**NAGW 2796 State Univ of New York - Stony Brook 6176**  
INFRARED SPECTROSCOPY OF JUPITER AND SATURN

Period	Obligations	
12/18/1991-09/30/1993	FY93: \$0	TOTAL: \$80,135
Prin. Invest.	NASA Tech. Officer	CASE Category
R KNACKE	HQ/W L QUAIDE	11-Astronomy

**NAS 5-31247 State Univ of New York - Stony Brook 6183**  
OBSER. ANALYSIS/THEORETICAL MODELING INVEST. UARS

Period	Obligations	
08/09/1990-04/01/1994	FY93: \$320,000	TOTAL: \$1,146,000
Prin. Invest.	NASA Tech. Officer	CASE Category
M A GELLER	GSFC/C A REBER	31-Atmos Sci

**NAGW 2958 State Univ of New York - Stony Brook 6177**  
STUDIES OF EXCITED SPECIES IN PLANETARY UPPER ATMO SPHERE

Period	Obligations	
03/03/1992-12/31/1993	FY93: \$73,207	TOTAL: \$155,494
Prin. Invest.	NASA Tech. Officer	CASE Category
J L FOX	HQ/W L QUAIDE	11-Astronomy

**NAS 5-31720 State Univ of New York - Stony Brook 6184**  
EOS INVESTIGATION GLOBAL HYDROLOGIC PROCESSES AND CLIMATE

Period	Obligations	
08/21/1991-08/21/1996	FY93: \$45,000	TOTAL: \$109,500
Prin. Invest.	NASA Tech. Officer	CASE Category
M GELLER	GSFC/W LAU	39-Env Sci, NEC

**NAGW 3165 State Univ of New York - Stony Brook 6178**  
TIMESCALES FOR THE DISSIPATION OF PROTOPLANETARY DISKS

Period	Obligations	
08/10/1992-05/31/1994	FY93: \$35,000	TOTAL: \$70,000
Prin. Invest.	NASA Tech. Officer	CASE Category
F WALTER	HQ/J A NUTH	19-Phys Sci, NEC

**NCC 3-241 State Univ of New York - Stony Brook 6185**  
FIBER OPTIC PROBES FOR LASER LIGHT SCATTERING:GROUND BASED EVALUATION FOR MICROGRAVITY FLIGHT EXPER

Period	Obligations	
12/02/1991-11/30/1993	FY93: \$53,061	TOTAL: \$83,066
Prin. Invest.	NASA Tech. Officer	CASE Category
H S DHADWAL	LERC/T K GLASGOW	47-Materials Engr

**NAGW 3206 State Univ of New York - Stony Brook 6179**  
NAGW-3206/STATE UNIV NEW YORK @ STONY BROOK/OPEN MIND CONFERENCE

Period	Obligations	
09/23/1992-03/14/1994	FY93: \$0	TOTAL: \$50,000
Prin. Invest.	NASA Tech. Officer	CASE Category
M ADAMS	HQ/B WHITE	99-Multi-Discip

**NGT 00-030-121 State Univ of New York - Stony Brook 6186**  
NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM

Period	Obligations	
10/21/1992-08/31/1994	FY93: \$44,000	TOTAL: \$44,000
Prin. Invest.	NASA Tech. Officer	CASE Category
A SUBRAMANIAM	HQ/G ASRAR	33-Oceanography
	....D M BUTLER	

**NAGW 3517 State Univ of New York - Stony Brook 6180**  
CONTINUED PARTICIPATION ON THE RECONSTITUTED EARTH RADIATION BUDGET EXPERIMENT SCIENCE TEAM

Period	Obligations	
04/30/1993-03/31/1994	FY93: \$84,245	TOTAL: \$84,245
Prin. Invest.	NASA Tech. Officer	CASE Category
R D CESS	HQ/J C DODGE	31-Atmos Sci
	....R A SCHIFFER	

**NGT 00-030-146 State Univ of New York - Stony Brook 6187**  
NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM

Period	Obligations	
10/21/1992-08/31/1994	FY93: \$44,000	TOTAL: \$44,000
Prin. Invest.	NASA Tech. Officer	CASE Category
A M WALLACE	HQ/G ASRAR	39-Env Sci, NEC
	....D M BUTLER	

**NASA'S UNIVERSITY PROGRAM  
NEW YORK (Continued)**

**NAG 9-459 State Univ of New York Col - 6188**  
**Plattsburgh**  
TRACE ELEMENT ABUNDANCE MEASUREMENTS ON COSMIC DUST PARTICLES  
*Period* *Obligations*  
07/01/1990-07/01/1994 FY93: \$0 TOTAL: \$95,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
G J FLYNN JSC/I D BROWNE 19-Phys Sci, NEC

**NAGW 3587 State Univ of New York Col - 6189**  
**Plattsburgh**  
TRACE ELEMENT ABUNDANCE MEASUREMENTS ON COSMIC DUST PARTICLES  
*Period* *Obligations*  
05/12/1993-06/30/1994 FY93: \$36,050 TOTAL: \$36,050  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
G FLYNN HQ/J BOYCE 32-Geological Sci

**NSG-5077 State Univ of New York College - 6190**  
**Purchase**  
SPECTRAL AND MONTE CARLO PREDICTABILITY STUDIES  
*Period* *Obligations*  
09/01/1975-05/31/1994 FY93: \$55,000 TOTAL: \$600,745  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J TENENBAUM GSFC/M HELFAND 31-Atmos Sci  
M REDDI

**NAGW 2259 State Univ of New York College, Buffalo 6191**  
COMPARATIVE VOLCANOLOGIC STUDIES AND PPG UNDERGRADUATE RESEARCH PROGRAM  
*Period* *Obligations*  
12/14/1990-12/31/1993 FY93: \$95,168 TOTAL: \$314,257  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J S KING HQ/T A MAXWELL 32-Geological Sci

**NGT 00-050-541 State Univ of New York College, Buffalo 6192**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period* *Obligations*  
12/22/1989-09/30/1992 FY93: \$0 TOTAL: \$62,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
D J INMAN HQ/F C OWENS 46-Mech Engr

**NGT 00-070-142 State Univ of New York College, Buffalo 6193**  
NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED MINORITY FOCUS PROGRAM  
*Period* *Obligations*  
09/22/1989-12/31/1993 FY93: \$22,000 TOTAL: \$84,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
D J MOOK HQ/F C OWENS 13-Physics

**NAG 5-1404 State Univ of New York-Oswego 6194**  
ELEMENTS IN SHARP-LINED EARLY TYPE STARS  
*Period* *Obligations*  
07/11/1990-07/31/1992 FY93: \$0 TOTAL: \$21,606  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
S W ROBY GSFC/D WEST 11-Astronomy

**NAG 1-759 Syracuse University 6195**  
COMPREHENSIVE ANALYSIS OF HELICOPTERS WITH BEARING LESS ROTORS  
*Period* *Obligations*  
05/20/1987-06/30/1993 FY93: \$0 TOTAL: \$115,507  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
V R MURTHY LARC/W T YEAGER 41-Aero Engr

**NAG 1-1240 Syracuse University 6196**  
NOISE REDUCTION POTENTIAL DUAL-STREAM COAXIAL RECTANGULAR IMPROPERLY-EXPANDED JET FLOW  
*Period* *Obligations*  
03/07/1991-09/30/1992 FY93: \$1 TOTAL: \$31,303  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
D S DOSANJH LARC/J M SEINER 41-Aero Engr  
E F SPINA ....D CHESTNUTT

**NAG 1-1400 Syracuse University 6197**  
REYNOLDS STRESS MEASUREMENTS IN HYPERSONIC BOUNDARY LAYERS  
*Period* *Obligations*  
02/24/1992-12/31/1993 FY93: \$50,131 TOTAL: \$118,404  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
E F SPINA LARC/S K ROBINSON 19-Phys Sci, NEC

**NAG 1-1401 Syracuse University 6198**  
SPECIFICATIONS FOR IMPROVED RELIABILITY AND TESTING: AN EXPERIMENTAL STUDY BASED ON GCS  
*Period* *Obligations*  
02/25/1992-11/22/1993 FY93: \$0 TOTAL: \$23,408  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
A L GOEL LARC/G B FINELLI 29-Math/Computer, NEC  
S K CHIN ....K J HAYHURST

**NAG 2-821 Syracuse University 6199**  
PLANNING FOR INDUSTRY INTERACTION IN HIGH PERFORMANCE COMPUTING FOR MULTIDISCIPLINARY DESIGN IN...  
*Period* *Obligations*  
12/16/1992-11/14/1993 FY93: \$117,000 TOTAL: \$117,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
G C FOX ARC/K G STEVENS 22-Computer Science  
E A BOGUCZ

**NAG 3-621 Syracuse University 6200**  
UNSTEADY TRANSIENT HEAT TRANSFER IN A TRANSIENT FACILITY  
*Period* *Obligations*  
03/07/1985-05/31/1994 FY93: \$15,000 TOTAL: \$228,735  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J E LEGRAFF LERC/J E O'BRIEN 46-Mech Engr  
....R J SIMONEAU

**NAG 3-837 Syracuse University 6201**  
MECHANISM OF MODE II SHEAR CRACK GROWTH IN A SINGLE CRYSTAL  
*Period* *Obligations*  
02/10/1988-02/09/1993 FY93: \$0 TOTAL: \$334,161  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
H W LIU LERC/J TELESMA 46-Mech Engr

**NASA'S UNIVERSITY PROGRAM**  
**NEW YORK (Continued)**

**NAG 3-1051 Syracuse University 6202**  
 ANALYSIS AND PREDICTION OF UNSTEADY BLADE HEAT TRANSFER: PILOT STUDY OF LEADING-EDGE REGION  
*Period Obligations*  
 06/06/1989-06/30/1992 FY93: \$0 TOTAL: \$50,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 E A BOGUCZ LERC/J E O'BRIEN 41-Aero Engr

**NAG 3-1468 Syracuse University 6203**  
 THREE-DIMENSIONAL AND VISCOUS INVERSE DESIGN METHOD FOR BLADES IN MULTISTAGE TURBOMACHINES  
*Period Obligations*  
 04/16/1993-01/12/1994 FY93: \$35,969 TOTAL: \$35,969  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 T Q DANG LERC/J P VERES 41-Aero Engr

**NAG 5-2280 Syracuse University 6204**  
 HIGH PERFORMANCE COMPUTING AND FOUR-DIMENSIONAL DATA ASSIMILATION  
*Period Obligations*  
 05/26/1993-11/30/1993 FY93: \$70,000 TOTAL: \$70,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 G C FOX GSFC/R B ROOD 31-Atmos Sci  
 K MILLS

**NAGW 2932 Syracuse University 6205**  
 HYDROGEN RECOMBINATION ON SURFACES OF INTERSTELLAR GRAIN ANALOGUES: A LABORATORY INVESTIGATION  
*Period Obligations*  
 02/28/1992-11/30/1993 FY93: \$80,972 TOTAL: \$161,092  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 G VIDALI HQ/L CAROFF 13-Physics

**NAGW 3256 Syracuse University 6206**  
 WORKSHOPS FOR ELEMENTARY SCHOOL TEACHERS  
*Period Obligations*  
 11/16/1992-07/31/1993 FY93: \$4,925 TOTAL: \$4,925  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 P G VIDALI HQ/L S LAPIANA 11-Astronomy  
 ....G P NEWTON

**NAGW 3713 Syracuse University 6207**  
 CENTER FOR TRAINING AND RESEARCH IN HYPERSONICS  
*Period Obligations*  
 08/12/1993-07/31/1994 FY93: \$50,000 TOTAL: \$50,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 E F SPINA HQ/S WANDER 49-Engr, NEC

**NGT 00-030-124 Syracuse University 6208**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
 10/30/1992-08/31/1994 FY93: \$44,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 B J WILSEY HQ/G ASRAR 39-Env Sci, NEC  
 ....D M BUTLER

**NGT 00-050-549 Syracuse University 6209**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 08/06/1990-06/30/1992 FY93: \$0 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M MONMONIER HQ/F C OWENS 22-Computer Science

**NGT 00-051-171 Syracuse University 6210**  
 GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 07/14/1993-06/30/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 E F SPINA LARC/E J PRIOR 46-Mech Engr

**NAG 2-117 University of Rochester 6211**  
 DEVELOPMENT OF AN INFRARED CCD FOR USE IN ASTRONOMY  
*Period Obligations*  
 10/01/1987-09/30/1993 FY93: \$55,000 TOTAL: \$749,764  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 W J FORREST ARC/J H GOEBEL 11-Astronomy  
 J L PIPHER ....C R MCCREIGHT  
 S D GALEMA

**NAGW 2123 University of Rochester 6212**  
 SUNSPOT DYNAMICS  
*Period Obligations*  
 06/06/1990-03/31/1993 FY93: \$74,600 TOTAL: \$240,800  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J H THOMAS HQ/J D BOHLIN 13-Physics  
 ....S KANE

**NAGW 2356 University of Rochester 6213**  
 CENTER FOR SPACE ENVIRONMENTAL HEALTH (CSEH)  
*Period Obligations*  
 01/30/1991-12/31/1993 FY93: \$999,000 TOTAL: \$2,905,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 T W CLARKSON HQ/R J WHITE 59-Life Sci, NEC

**NAGW 2393 University of Rochester 6214**  
 ALTERNATE DETECTOR TECHNOLOGIES FOR SIRT  
*Period Obligations*  
 04/17/1991-03/31/1994 FY93: \$105,000 TOTAL: \$525,654  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J L PIPHER HQ/M BICAY 11-Astronomy

**NAGW 2444 University of Rochester 6215**  
 NAGW-2444/UNIV ROCHESTER/SEISMOLOGY OF ROTATING, MAGNETIC STARS  
*Period Obligations*  
 07/01/1991-01/31/1994 FY93: \$190,000 TOTAL: \$525,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J H THOMAS HQ/G S KUTTER 11-Astronomy  
 ....G R RIEGLER

**NAGW 2514 University of Rochester 6216**  
 NAGW-2514/UNIV ROCHESTER/SUBMILLIMETER SIGNAL RECEIVE RESEARCH  
*Period Obligations*  
 05/10/1991-05/31/1994 FY93: \$53,000 TOTAL: \$156,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M J WENGLER HQ/M D BICAY 45-Elec Engr

**NCA 2-618 University of Rochester 6217**  
 INFLUENCES OF FIXATION AND GRAVITY ON THE LINEAR VESTIBULOCULAR REFLEX.  
*Period Obligations*  
 06/07/1991-04/30/1994 FY93: \$39,975 TOTAL: \$79,818  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 G D PAIGE ARC/D L TOMKO 56-Medical Sciences

# **NASA'S UNIVERSITY PROGRAM** **NEW YORK (Continued)**

**NCA 2-827 University of Rochester 6218**  
 COMPUTATIONAL MODELING OF ULTRAFAST OPTICLA PHENOM ENA  
 IN SEMICONDUCTOR LASERS AND AMPLIFIERS  
*Period Obligations*  
 06/29/1993-08/31/1994 FY93: \$25,000 TOTAL: \$25,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 G AGRAWL ARC/P GOORJIAN 45-Elec Engr

**NGT 00-050-609 University of Rochester 6219**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 07/24/1990-06/30/1992 FY93: \$0 TOTAL: \$37,992  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 H M VANHORN HQ/F C OWENS 13-Physics

**NGT 00-050-817 University of Rochester 6220**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 08/16/1991-06/30/1994 FY93: \$21,050 TOTAL: \$61,484  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J PIPHER HQ/J T LYNCH 11-Astronomy

**NGT 00-050-888 University of Rochester 6221**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 07/01/1992-06/30/1993 FY93: \$20,000 TOTAL: \$40,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D M WATSON JPL/H ASHKENAS 13-Physics

**NGT 00-051-109 University of Rochester 6222**  
 GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 07/29/1993-08/31/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 G W WICKS LARC/E PRIOR 45-Elec Engr

**NAG 9-573 Yeshiva University 6223**  
 AUTOMATED MICROBIOLOGY SYSTEM DIAGNOSTIC CARDS FOR  
 DETECTION/ISOLATION OF COMMON MICRO-ORGANISMS  
*Period Obligations*  
 03/08/1992-10/01/1993 FY93: \$0 TOTAL: \$60,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 H D ISENBERT JSC/D L PIERSON 56-Medical Sciences

**NAG 1-709 Duke University 6225**  
 ASYMPTOTIC MODAL ANALYSIS AND STATISTICAL ENERGY A  
 NALYSIS  
*Period Obligations*  
 10/16/1986-02/01/1992 FY93: \$0 TOTAL: \$301,620  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 E A DOWELL LARC/K P SHEPHERD 46-Mech Engr  
 ....C A POWELL

**NAG 1-1208 Duke University 6226**  
 ANALYSIS METHODS AND INNOVATIVE CONCEPTS FOR ADVAN CED  
 DUCTED FAN ACOUSTIC LINERS  
*Period Obligations*  
 12/20/1990-12/31/1992 FY93: \$0 TOTAL: \$59,783  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D B BLISS LARC/J W POSEY 46-Mech Engr  
 ....F FARASSAT

**NAG 3-724 Duke University 6227**  
 UNSTEADY SEPARATED FLOW MODELS FOR STALL FLUTTER  
 ANALYSIS IN TURBOMOC  
*Period Obligations*  
 04/16/1986-03/03/1994 FY93: \$40,000 TOTAL: \$415,042  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 E H DOWELL LERC/G L STEFKO 41-Aero Engr  
 D P BLISS ....L J KIRALY

**NAG 3-1192 Duke University 6228**  
 DEV OF AN EFF 2-D LINEARIZED EULER SOLVER FOR ANAL Y OF  
 UNSTEADY TRANS FLOWS IN TURBOMACH  
*Period Obligations*  
 07/16/1990-07/05/1992 FY93: \$0 TOTAL: \$102,795  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 K C HALL LERC/D HOYNIAC 41-Aero Engr

**NAG 3-1433 Duke University 6229**  
 AEROACOUSTIC SENSITIVITY ANALYSIS AND OPTIMAL AEROAC  
 OUSTIC DESIGN OF TURBOMACHINERY BLADES  
*Period Obligations*  
 01/15/1993-01/10/1994 FY93: \$52,157 TOTAL: \$52,157  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 K HALL LERC/D HOYNIAC 41-Aero Engr  
 ....D L HUFF

**NAG 5-379 Duke University 6230**  
 CRITICAL TRANSPORT PHENOMENA IN FLUID HELIUM UNDER LOW  
 GRAVITY  
*Period Obligations*  
 11/15/1983-01/31/1993 FY93: \$0 TOTAL: \$770,269  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 H MEYER GSFC/S H CASTLES 13-Physics  
 R P BEHRINGER ....M G RYSCHKIEWITSCH

## **NORTH CAROLINA**

**NAG 1-1321 Appalachian State University 6224**  
 A HYPertext BASED PILOT OPERATIONS AND PROCEDURES  
 MANUAL  
*Period Obligations*  
 08/13/1991-02/28/1994 FY93: \$34,269 TOTAL: \$101,630  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 C R RUSSELL LARC/T S ABBOTT 22-Computer Science  
 ....M T PALMER

**NAG 8-966 Duke University 6231**  
 CRYSTALLIZATION OF SOLUTION PROPERTIES OF REDESIGN ED  
 PROTEIN SUFACES  
*Period Obligations*  
 08/10/1993-06/30/1994 FY93: \$71,942 TOTAL: \$71,942  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D C RICHARDSON MSFC/D CARTER 19-Phys Sci, NEC



**NASA'S UNIVERSITY PROGRAM  
NORTH CAROLINA (Continued)**

**NAG 8-982 Duke University 6232**  
NON-LINEAR OPTICAL SYSTEMS SUPPORT  
*Period Obligations*  
09/16/1993-09/19/1994 FY93: \$75,000 TOTAL: \$75,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J M MADEY MSFC/E E MONTGOMERY 13-Physics

**NCA 2-617 Duke University 6239**  
FAULT TREE MODELS OF FAULT TOLERANT DISTRIBUTED SYSTEMS.  
*Period Obligations*  
05/28/1991-05/31/1993 FY93: \$0 TOTAL: \$80,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J B DUGAN ARC/A PATTERSON-HINE  
22-Computer Science

**NAG 9-134 Duke University 6233**  
NITROGEN ELIMINATION/MODIFYING FACTORS  
*Period Obligations*  
03/01/1986-03/01/1994 FY93: \$90,000 TOTAL: \$724,430  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R D VANN JSC/M R POWELL 56-Medical Sciences

**NCA 2-825 Duke University 6240**  
DIGRAPH TECHNIQUES FOR DEPENDABILITY ANALYSIS OF FAULT TOLERANT SYSTEMS  
*Period Obligations*  
06/03/1993-05/31/1994 FY93: \$40,000 TOTAL: \$40,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J B DUGAN ARC/M A BOYD 22-Computer Science

**NAGW 1259 Duke University 6234**  
MILLIMETER AND SUBMILLIMETER LABORATORY STUDIES  
*Period Obligations*  
01/21/1988-01/31/1992 FY93: \$0 TOTAL: \$217,516  
*Prin. Invest. NASA Tech. Officer CASE Category*  
E HERBST HQ/F C GILLET 11-Astronomy

**NGT 00-030-069 Duke University 6241**  
NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
09/19/1991-08/31/1994 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
A E HARTLEY HQ/D M BUTLER 39-Env Sci, NEC  
W SCHLESINGER ....G S WILSON

**NAGW 2692 Duke University 6235**  
MONITORING TRENDS IN FIRE-DISTURBED BLACK SPRUCE FORESTS  
*Period Obligations*  
08/09/1991-03/31/1994 FY93: \$36,210 TOTAL: \$126,376  
*Prin. Invest. NASA Tech. Officer CASE Category*  
N L CHRISTENSEN HQ/R H THOMAS 39-Env Sci, NEC  
....D M BUTLER

**NGT 00-030-077 Duke University 6242**  
NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
09/19/1991-08/31/1994 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
A F CROSS HQ/D M BUTLER 39-Env Sci, NEC  
W H SCHLESINGER ....G S WILSON

**NAGW 3328 Duke University 6236**  
EQUILIBRATION IN DENSITY AND TEMPERATURE NEAR THE LIQUID VAPOR CRITICAL POINT  
*Period Obligations*  
12/31/1992-12/31/1993 FY93: \$95,000 TOTAL: \$95,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
H MEYER HQ/M C LEE 12-Chemistry

**NGT 00-030-199 Duke University 6243**  
NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
09/01/1993-08/31/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
W H SCHLESINGER HQ/G ASRAR 39-Env Sci, NEC  
....D M BUTLER

**NAGW 3655 Duke University 6237**  
PHYSICAL AND METEOROLOGICAL REGULATION OF OCEANIC PRIMARY PRODUCTION IN THE EQUATORIAL PACIFIC  
*Period Obligations*  
06/14/1993-03/31/1994 FY93: \$51,427 TOTAL: \$51,427  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R BARBER HQ/R E MURPHY 33-Oceanography  
....S G TILFORD

**NGT 00-030-211 Duke University 6244**  
NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
09/02/1993-08/31/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R OREN HQ/G ASRAR 31-Atmos Sci  
....D M BUTLER

**NAS 1-18997 Duke University 6238**  
SAFIRE SCIENTIFIC INVESTIGATION  
*Period Obligations*  
01/22/1990-01/22/1992 FY93: \$0 TOTAL: \$26,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
F DELUCIA LARC/J M RUSSELL 31-Atmos Sci  
....J D LAWRENCE

**NGT 00-050-459 Duke University 6245**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
08/08/1989-06/30/1992 FY93: \$0 TOTAL: \$62,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
F H COCKS HQ/F C OWENS 46-Mech Engr

**NGT 00-050-989 Duke University 6246**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
07/30/1992-06/30/1994 FY93: \$22,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
L N VIRGIN LARC/E PRIOR 46-Mech Engr

**NASA'S UNIVERSITY PROGRAM  
NORTH CAROLINA (Continued)**

**NGT 00-051-105 Duke University 6247**  
GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
05/24/1993-06/30/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D B BLISS LARC/E PRIOR 46-Mech Engr

**NGT 00-090-166 Duke University 6248**  
UNDERGRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
08/25/1993-08/14/1994 FY93: \$12,000 TOTAL: \$12,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
E H DOWELL HQ/D K RUSSELL 99-Multi-Discip

**NSG-3160 Duke University 6249**  
ACCELERATION OF CONVERGENCE  
*Period Obligations*  
06/01/1977-08/31/1993 FY93: \$1 TOTAL: \$248,893  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D A SMITH LERC/W F FORD 21-Mathematics

**NAGW 2927 East Carolina University 6250**  
NEURAL REGULATION OF BONE RESORPTION DURING SIMULA TED  
WEIGHTLESSNESS IN THE RAT  
*Period Obligations*  
02/27/1992-09/30/1994 FY93: \$0 TOTAL: \$9,790  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D M TERRIAN HQ/J H STOKLOSA 59-Life Sci, NEC

**NCC 2-810 East Carolina University 6251**  
PHYSIOLOGICAL ANATOMICAL RODENT EXPERIMENT (PARE) .04  
FEASIBILITY TEST 1  
*Period Obligations*  
07/16/1993-10/31/1993 FY93: \$47,573 TOTAL: \$47,573  
*Prin. Invest. NASA Tech. Officer CASE Category*  
H W BURDEN ARC/C M WINGET 51-Biological Sci  
..../C C JAHNS

**NAGW 3083 Fayetteville State University 6252**  
TIMS A MODEL FORE PRE-SERVICE AND IN-SERVICE TEACHER  
TRAINING MIDDLE SCHOOL LEVEL  
*Period Obligations*  
05/15/1992-07/31/1994 FY93: \$0 TOTAL: \$82,850  
*Prin. Invest. NASA Tech. Officer CASE Category*  
L EDWARDS HQ/D GALLAWAY 21-Mathematics

**NGT 00-090-040 Fayetteville State University 6253**  
MINORITY SCIENCE ENGINEERING PROGRAM  
*Period Obligations*  
08/30/1991-08/31/1994 FY93: \$48,918 TOTAL: \$164,039  
*Prin. Invest. NASA Tech. Officer CASE Category*  
L EDWARDS HQ/B WHITE 49-Engr, NEC

**NGT 00-090-124 Fayetteville State University 6254**  
UNDERGRADUATE STUDENT RESEARCHERS PROGRAM (UMF)  
*Period Obligations*  
09/26/1992-08/14/1994 FY93: \$24,000 TOTAL: \$24,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
L EDWARDS HQ/D K RUSSELL 99-Multi-Discip

**NAG 8-223 Guilford College 6255**  
JOVE  
*Period Obligations*  
01/24/1992-06/09/1994 FY93: \$32,000 TOTAL: \$91,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
C ALMY MSFC/F SIX 99-Multi-Discip  
T ESPINOLA

**NAG 1-956 North Carolina A&T State University 6256**  
A SPACE TECHNOLOGY DEVELOPMENT AND UTILIZATION  
PROGRAM  
*Period Obligations*  
01/13/1989-10/31/1993 FY93: \$0 TOTAL: \$3,986,072  
*Prin. Invest. NASA Tech. Officer CASE Category*  
L SHARPE LARC/S E MASSENBERG 99-Multi-Discip  
A HOMAIFAR ....E J PRIOR  
A CHOWDHURY

**NAG 1-997 North Carolina A&T State University 6257**  
DYNAMIC ANALYSIS OF THE JOINT DOMINATED BEAM  
*Period Obligations*  
05/03/1998-12/18/1993 FY93: \$0 TOTAL: \$170,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
E G ABU-SABA LARC/R C MONTGOMERY 42-Astro Engr  
W M MCGINLEY ....J P WILLIAMS

**NAG 1-1287 North Carolina A&T State University 6258**  
TURBULENCE MODELING FOR HIGH SPEED COMPRESSIBLE  
FLOWS  
*Period Obligations*  
05/30/1991-09/30/1993 FY93: \$0 TOTAL: \$25,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
S CHANDRA LARC/T B GATSKI 41-Aero Engr

**NAG 1-1289 North Carolina A&T State University 6259**  
GRADUATE SUMMER INTERN PROGRAM  
*Period Obligations*  
06/19/1991-08/31/1992 FY93: \$0 TOTAL: \$80,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
C LEE LARC/S E MASSENBERG 99-Multi-Discip  
L SHARPE

**NAG 1-1454 North Carolina A&T State University 6260**  
DEVELOPMENT OF PREDICTIVE MODELS USING REMOTELY SENSED  
DATA FOR SIMULATING DAMAGE POTENTIALS TO NA  
*Period Obligations*  
09/18/1992-03/31/1994 FY93: \$0 TOTAL: \$125,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
G A UZOCHUKWU LARC/R L YANG 39-Env Sci, NEC  
E U NZEWI ....E LEVINE  
G A GAYLE

**NAG 3-976 North Carolina A&T State University 6261**  
MATERIALS STUDIES FOR SOLAR CELL STRUCTURES  
*Period Obligations*  
01/26/1989-01/31/1994 FY93: \$0 TOTAL: \$270,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
W COLLY LERC/I WEINBERG 45-Elec Engr  
A A-FADR ....D J FLOOD  
I SHANTI

**NASA'S UNIVERSITY PROGRAM**  
**NORTH CAROLINA (Continued)**

**NAG 3-1432 North Carolina A&T State University 6262**  
 GRAPHITE FIBER TEXTILE PREFORM/COPPER MATRIX COMPO  
 SITE

<i>Period</i>	<i>Obligations</i>	
12/30/1992-12/31/1993	FY93: \$157,000	TOTAL: \$157,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
G J FILATOV	LERC/R V MINER	47-Materials Engr
R L SADLER		

**NAG 3-1452 North Carolina A&T State University 6263**  
 DEVELOPMENT OF PROCESSING, FABRICATION AND EVALUATIO N  
 OF GRAPHITE FIBER-REINFORCED POLYIMIDE TUBES

<i>Period</i>	<i>Obligations</i>	
02/08/1993-01/28/1994	FY93: \$123,205	TOTAL: \$123,205
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
V S AVVA	LERC/R D VANNUCCI	46-Mech Engr
R L SADLER		

**NAG 9-334 North Carolina A&T State University 6264**  
 VLSI DESIGN/DIGITAL SIGNAL PROCESSING

<i>Period</i>	<i>Obligations</i>	
01/03/1989-08/31/1993	FY93: \$14,199	TOTAL: \$202,644
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
J FOSTER	JSC/C HERMAN	19-Phys Sci, NEC

**NAG 9-504 North Carolina A&T State University 6265**  
 DEVELOP FAULT TOLERANT ARRAY

<i>Period</i>	<i>Obligations</i>	
08/28/1991-03/31/1993	FY93: \$189	TOTAL: \$59,811
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
P LALA	JSC/E EMANUEL	19-Phys Sci, NEC

**NAGW 2924 North Carolina A&T State University 6266**  
 THE CENTER FOR AEROSPACE RESEARCH

<i>Period</i>	<i>Obligations</i>	
02/28/1992-12/31/1993	FY93: \$1,516,835	TOTAL: \$2,325,238
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
S Y LAO	HQ/S E MASSENBERG	99-Multi-Discip
	....S HARTMAN	

**NAS 1-19157 North Carolina A&T State University 6267**  
 EXPERIMENTAL, DEVELOPMENTAL AND BASIC AND APPLIED  
 RESEARCH

<i>Period</i>	<i>Obligations</i>	
08/03/1990-08/02/1995	FY93: \$596,000	TOTAL: \$3,486,728
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
L SHARPE	LARC/S E MASSENBERG	99-Multi-Discip
	....E J PRIOR	

**NGT 00-050-841 North Carolina A&T State University 6268**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM

<i>Period</i>	<i>Obligations</i>	
08/22/1991-06/30/1993	FY93: \$0	TOTAL: \$44,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
D DUNN	HQ/F C OWENS	46-Mech Engr

**NGT 00-090-083 North Carolina A&T State University 6269**  
 UNDERGRADUATE STUDENT RESEARCHERS PROGRAM (UMF)

<i>Period</i>	<i>Obligations</i>	
09/26/1992-08/14/1994	FY93: \$24,000	TOTAL: \$24,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
L SHARPE	HQ/D K RUSSELL	99-Multi-Discip

**NGT 00-090-084 North Carolina A&T State University 6270**  
 UNDERGRADUATE STUDENT RESEARCHERS PROGRAM (UMF)

<i>Period</i>	<i>Obligations</i>	
09/26/1992-08/14/1994	FY93: \$24,000	TOTAL: \$24,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
L SHARPE	HQ/D K RUSSELL	99-Multi-Discip

**NGT 00-090-085 North Carolina A&T State University 6271**  
 UNDERGRADUATE STUDENT RESEARCHERS PROGRAM

<i>Period</i>	<i>Obligations</i>	
09/12/1992-08/14/1994	FY93: \$12,000	TOTAL: \$24,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
L SHARPE	HQ/D K RUSSELL	99-Multi-Discip

**NGT 00-090-086 North Carolina A&T State University 6272**  
 UNDERGRADUATE STUDENT RESEARCHERS PROGRAM

<i>Period</i>	<i>Obligations</i>	
09/12/1992-08/14/1994	FY93: \$12,000	TOTAL: \$24,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
L SHARPE	HQ/D K RUSSELL	99-Multi-Discip

**NGT 00-090-087 North Carolina A&T State University 6273**  
 UNDERGRADUATE STUDENT RESEARCHERS PROGRAM (UMF)

<i>Period</i>	<i>Obligations</i>	
09/12/1992-08/14/1994	FY93: \$12,000	TOTAL: \$24,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
L SHARPE	HQ/D K RUSSELL	99-Multi-Discip

**NGT 00-090-088 North Carolina A&T State University 6274**  
 UNDERGRADUATE STUDENT RESEARCHERS PROGRAM (UMF)

<i>Period</i>	<i>Obligations</i>	
09/12/1992-08/14/1994	FY93: \$12,000	TOTAL: \$24,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
L SHARPE	HQ/D K RUSSELL	99-Multi-Discip

**NAG 1-244 North Carolina State Univ. - Raleigh 6275**  
 NUMERICAL SOLUTIONS OF THE COMPLETE NAVIER - STOKES  
 EQUATIONS

<i>Period</i>	<i>Obligations</i>	
12/04/1981-09/30/1994	FY93: \$81,112	TOTAL: \$655,634
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
H A HASSAN	LARC/J E HARRIS	41-Aero Engr
E GANTT	....D H RUDY	
R W WALTERS		

**NAG 1-696 North Carolina State Univ. - Raleigh 6276**  
 ENGINEERING SPECIFICATION AND SYSTEM DESIGN FOR CA D/CAM  
 OF CUSTOM SHOES

<i>Period</i>	<i>Obligations</i>	
08/13/1986-12/31/1992	FY93: \$0	TOTAL: \$687,709
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
D F MCALLISTER	LARC/F H FARMER	49-Engr, NEC
R C LUO	....J SAMOS	
E C SANII		

**NAG 1-943 North Carolina State Univ. - Raleigh 6277**  
 LOW LOSS COMPONENTS FOR SWITCHED BEAM RADIOMETERS

<i>Period</i>	<i>Obligations</i>	
01/13/1989-09/30/1992	FY93: \$1,550	TOTAL: \$348,320
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
R J TREW	LARC/C P HEARN	45-Elec Engr
J K KAUFFMAN		

**NASA'S UNIVERSITY PROGRAM  
NORTH CAROLINA (Continued)**

**NAG 1-977 North Carolina State Univ. - Raleigh 6278**  
NASA/NCSU SPACECRAFT CONTROLS  
*Period* *Obligations*  
03/01/1989-02/28/1993 FY93: \$0 TOTAL: \$151,191  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
L SILVERBERG LARC/R C MONTGOMERY 42-Astro Engr  
...../S S WELCH

**NAG 1-1283 North Carolina State Univ. - Raleigh 6285**  
TELEROBOTIC CONTROL OF A MOBILE COORDINATED ROBOTIC SERVICER  
*Period* *Obligations*  
05/24/1991-05/31/1994 FY93: \$96,700 TOTAL: \$231,901  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
G K LEE LARC/J J UANG 42-Astro Engr  
...../L HORTA

**NAG 1-983 North Carolina State Univ. - Raleigh 6279**  
MULTIVERSION SOFTWARE RELIABILITY THROUGH FAULT AVOIDANCE AND FAULT-TOLERANCE  
*Period* *Obligations*  
03/01/1989-10/31/1994 FY93: \$55,500 TOTAL: \$377,670  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
M A VOUK LARC/D E ECKHARDT 22-Computer Science  
D F MCALLISTER

**NAG 1-1330 North Carolina State Univ. - Raleigh 6286**  
COMPUTATIONAL TECHNIQUES FOR FLOWS WITH FINITE RATE CONDENSATION  
*Period* *Obligations*  
08/19/1991-09/30/1992 FY93: \$4,772 TOTAL: \$30,371  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
G V CANDLER LARC/L R HUNT 41-Aero Engr

**NAG 1-1100 North Carolina State Univ. - Raleigh 6280**  
MEMORY EFFECTS IN ORGANOMETALLIC MOLECULAR BEAM EPITAXY  
*Period* *Obligations*  
03/07/1990-05/31/1993 FY93: \$0 TOTAL: \$300,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
K J BACHMANN LARC/A L FRIPP 19-Phys Sci, NEC

**NAG 1-1340 North Carolina State Univ. - Raleigh 6287**  
TIME ACCURATE COMPUTATION OF UNSTEADY SPIKE TIPPED BODY FLOWS WITH A DYNAMIC FLOW ADAPTIVE MESH  
*Period* *Obligations*  
08/28/1991-08/31/1994 FY93: \$25,000 TOTAL: \$75,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
D S MCRAE LARC/R E SMITH 41-Aero Engr  
...../J J LAMBIOTTE

**NAG 1-1136 North Carolina State Univ. - Raleigh 6281**  
DISTRIBUTED DIGITAL SIGNAL PROCESSORS FOR MULTI-BODY FLEXIBLE STRUCTURES  
*Period* *Obligations*  
05/22/1990-04/30/1992 FY93: \$45 TOTAL: \$63,518  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
G K LEE LARC/J J UANG 42-Astro Engr  
...../L G HORTA

**NAG 1-1436 North Carolina State Univ. - Raleigh 6288**  
COMPUTATIONAL CONTROL OF FLEXIBLE AEROSPACE SYSTEMS  
*Period* *Obligations*  
05/12/1992-03/31/1994 FY93: \$70,695 TOTAL: \$152,744  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
L SHARPE LARC/L W TAYLOR 42-Astro Engr

**NAG 1-1212 North Carolina State Univ. - Raleigh 6282**  
GEOMETRIC MODELLING OF TEXTILE REINFORCEMENT FOR STRUCTURAL ANALYSIS  
*Period* *Obligations*  
02/01/1991-11/28/1993 FY93: \$60,033 TOTAL: \$171,351  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
C M PASTORE LARC/C C POE 47-Materials Engr  
...../C E HARRIS

**NAG 2-684 North Carolina State Univ. - Raleigh 6289**  
HETEROGENEOUS PHOTOCATALYTIC OXIDATION OF ATMOSPHERIC TRACE CONTAMINANTS  
*Period* *Obligations*  
11/16/1990-10/31/1993 FY93: \$86,837 TOTAL: \$186,837  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
D F OLLIS ARC/E L FORCE 43-Chem Engr  
...../W E BERRY

**NAG 1-1214 North Carolina State Univ. - Raleigh 6283**  
ANALYSIS OF DETECTORS FOR THE INTERPLANETARY DUST EXPERIMENT (LDEF AO201)  
*Period* *Obligations*  
01/28/1991-03/31/1994 FY93: \$50,000 TOTAL: \$259,045  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
D P GRIFFIS LARC/L A TEICHMAN 47-Materials Engr  
J J WORTMAN

**NAG 3-855 North Carolina State Univ. - Raleigh 6290**  
AERODYNAMICS AND ACOUSTIC INTERACTION OF COUNTER ROTATION PROPELLERS  
*Period* *Obligations*  
01/19/1988-07/27/1993 FY93: \$0 TOTAL: \$370,207  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R T NAGEL LERC/E A KREJSA 41-Aero Engr  
...../J F GROENEWEG

**NAG 1-1219 North Carolina State Univ. - Raleigh 6284**  
HIGH RESOLUTION FREQUENCY TO TIME DOMAIN TRANSFORMATIONS APPLIED TO THE STEPPED CARRIER MRIS  
*Period* *Obligations*  
02/20/1991-07/31/1992 FY93: \$1 TOTAL: \$42,207  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
S H ARDALAN LARC/R T NEECE 45-Elec Engr  
G A YBARRA

**NAG 5-1042 North Carolina State Univ. - Raleigh 6291**  
STUDY OF PARTICLE INJECTION AND ACCELERATION IN PARABOLIC AND OBLIQUE COLLISIONLESS SHOCKS  
*Period* *Obligations*  
03/15/1988-06/30/1993 FY93: \$0 TOTAL: \$112,789  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
D C ELLISON GSFC/F C JONES 13-Physics

**NASA'S UNIVERSITY PROGRAM**  
**NORTH CAROLINA (Continued)**

**NAG 5-1790 North Carolina State Univ. - Raleigh 6292**  
MESO-BETA SCALE NUMERICAL SIMULATION STUDIES OF T  
RRAIN-INDUCED JET STREAK MASS/MOMENTUM PERTURBATI  

Period	Obligations	
11/01/1991-11/14/1993	FY93: \$85,000	TOTAL: \$170,000
Prin. Invest.	NASA Tech. Officer	CASE Category
Y L LIN	GSFC/S E KOCH	31-Atmos Sci
M L KAPLAN		

**NAG 5-2212 North Carolina State Univ. - Raleigh 6293**  
1) SEARCH FOR X-RAY EMISSION FROM HIGH LATITUDE SU  
PERNOVA REMNANT DA 530 2) ELECTRON HEATING. . .  

Period	Obligations	
02/18/1993-02/28/1994	FY93: \$28,864	TOTAL: \$28,864
Prin. Invest.	NASA Tech. Officer	CASE Category
S P REYNOLDS	GSFC/R PETRE	11-Astronomy

**NAG 5-2254 North Carolina State Univ. - Raleigh 6294**  
THE PHYSICAL FOUNDATIONS OF PARTICLE ACCELERATION BY  
COLLISIONLESS SHOCKS IN SPACE  

Period	Obligations	
04/27/1993-04/30/1994	FY93: \$79,500	TOTAL: \$79,500
Prin. Invest.	NASA Tech. Officer	CASE Category
D C ELLISON	GSFC/T J BIRMINGHAM	13-Physics
....J D BOHLIN		

**NAG 9-594 North Carolina State Univ. - Raleigh 6295**  
NASA ODERACS TESTING AND MISSION OPERATIONS  

Period	Obligations	
04/24/1992-06/01/1993	FY93: \$49	TOTAL: \$15,951
Prin. Invest.	NASA Tech. Officer	CASE Category
L SILVERBERG	JSC/J STANLEY	42-Astro Engr

**NAGW 838 North Carolina State Univ. - Raleigh 6296**  
SEASONAL S13C VARIATIONS OF BIOGENIC METHANE  

Period	Obligations	
10/01/1985-12/31/1992	FY93: \$0	TOTAL: \$938,043
Prin. Invest.	NASA Tech. Officer	CASE Category
N E BLAIR	HQ/M J KURYLO	39-Env Sci, NEC
....R T WATSON		

**NAGW 1072 North Carolina State Univ. - Raleigh 6297**  
RESEARCH IN HYPERSONIC AERODYNAMICS  

Period	Obligations	
04/15/1987-06/30/1994	FY93: \$0	TOTAL: \$1,000,000
Prin. Invest.	NASA Tech. Officer	CASE Category
R DEJARNETTE	HQ/S M WANDER	19-Phys Sci, NEC
F D HART	....R A GRAVES	

**NAGW 1331 North Carolina State Univ. - Raleigh 6298**  
SPACE ENGINEERING RESEARCH CENTER  

Period	Obligations	
07/12/1988-10/31/1993	FY93: \$1,730,000	TOTAL: \$9,692,440
Prin. Invest.	NASA Tech. Officer	CASE Category
F R DEJARNETTE	HQ/S M WANDER	49-Engr, NEC

**NAGW 2001 North Carolina State Univ. - Raleigh 6299**  
DIFFUSIVE SHOCK ACCELERATION AND COSMIC RAY TRANSP ORT:  
A SIMULATION APPROACH  

Period	Obligations	
04/25/1990-02/28/1993	FY93: \$0	TOTAL: \$191,347
Prin. Invest.	NASA Tech. Officer	CASE Category
D C ELLISON	HQ/W V JONES	13-Physics
....J C LING		

**NAGW 2625 North Carolina State Univ. - Raleigh 6300**  
NAGW-2625/NORTH CAROLINA STATE UNIV/STRAIN ACCUMUL  
ATION MONITORING IN THE NEW MADRID SEISMIC ZONE  

Period	Obligations	
09/26/1991-04/30/1992	FY93: \$0	TOTAL: \$12,863
Prin. Invest.	NASA Tech. Officer	CASE Category
M G BEVIS	HQ/M BALTUCK	32-Geological Sci

**NAGW 2865 North Carolina State Univ. - Raleigh 6301**  
THE CONTROL OF THE PRITY AND STOICHIOMETRY OF COMP  
UND SEMI BY HIGH PRESSURE VAPOR TRANSPORT  

Period	Obligations	
01/31/1992-02/14/1994	FY93: \$175,498	TOTAL: \$332,956
Prin. Invest.	NASA Tech. Officer	CASE Category
K J BACHMANN	HQ/J K ALEXANDER	47-Materials Engr
....D A HOLLAND		

**NAGW 3120 North Carolina State Univ. - Raleigh 6302**  
NAGW-3120/NORTH CAROLINA STATE UNIV/STATISTICAL ANALYSIS  
OF ATMOSPHERE DATA  

Period	Obligations	
06/26/1992-06/30/1994	FY93: \$35,704	TOTAL: \$77,808
Prin. Invest.	NASA Tech. Officer	CASE Category
P BLOOMFIELD	HQ/J A KAYE	31-Atmos Sci
....R E MURPHY		

**NAGW 3575 North Carolina State Univ. - Raleigh 6303**  
INFLUENCE OF VERTICAL MIXING ON THE SEA WIFS ALGOR  
ITHMS  

Period	Obligations	
05/26/1993-03/31/1994	FY93: \$50,000	TOTAL: \$50,000
Prin. Invest.	NASA Tech. Officer	CASE Category
D KAMYKOWSKI	HQ/D E WICKLAND	33-Oceanography
....A C JANETOS		

**NAGW 3658 North Carolina State Univ. - Raleigh 6304**  
HYDRODYNAMIC FLOWS IN X-RAY BINARIES  

Period	Obligations	
06/15/1993-03/31/1994	FY93: \$11,215	TOTAL: \$11,215
Prin. Invest.	NASA Tech. Officer	CASE Category
J M BLONDIN	HQ/L J KALUZIENSKI	11-Astronomy
....A N BUNNER		

**NAS 1-18944 North Carolina State Univ. - Raleigh 6305**  
SAGE III SCIENCE INVESTIGATION SUPPORT; P.I. PROFESSOR  
SAXENA  

Period	Obligations	
10/06/1989-01/31/1995	FY93: \$5,000	TOTAL: \$26,637
Prin. Invest.	NASA Tech. Officer	CASE Category
V SAXENA	LARC/G MADDREA	19-Phys Sci, NEC

**NAS 5-30698 North Carolina State Univ. - Raleigh 6306**  
GLRS SCIENCE TEAM MEMBER STUDY  

Period	Obligations	
06/20/1989-02/14/1993	FY93: \$0	TOTAL: \$100,000
Prin. Invest.	NASA Tech. Officer	CASE Category
S COHEN	GSFC/G SOFFEN	32-Geological Sci

**NASA'S UNIVERSITY PROGRAM  
NORTH CAROLINA (Continued)**

**NCA 2-519 North Carolina State Univ. - Raleigh 6307**  
VIBRATION DISSOCIATION  
*Period* *Obligations*  
05/18/1990-11/30/1992 FY93: \$0 TOTAL: \$69,513  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
G V CANDLER ARC/G S DEIWERT 42-Astro Engr

**NCA 2-719 North Carolina State Univ. - Raleigh 6308**  
NUMERICAL SIMULATION OF SUPERSONIC AND HYPERSONIC INLET FLOW FIELD  
*Period* *Obligations*  
05/21/1992-05/31/1994 FY93: \$40,198 TOTAL: \$79,568  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
D S MCRAE ARC/T EDWARDS 21-Mathematics

**NCC 1-22 North Carolina State Univ. - Raleigh 6309**  
COMPUTATIONAL FLUID MECHANICS  
*Period* *Obligations*  
06/15/1979-09/14/1994 FY93: \$204,982 TOTAL: \$1,374,170  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
H A HASSAN LARC/J E HARRIS 41-Aero Engr  
F R DEJARNETTE ....J D KELLER

**NCC 1-46 North Carolina State Univ. - Raleigh 6310**  
INVESTIGATION OF THE AERODYNAMIC CHARACTERISTICS OF LEADING EDGE VORTEX FLAPS  
*Period* *Obligations*  
09/18/1980-11/15/1992 FY93: \$9 TOTAL: \$372,463  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
N CHOKANI LARC/W E SCHOONOVER JR. 41-Aero Engr  
....R M HALL

**NCC 1-100 North Carolina State Univ. - Raleigh 6311**  
APPROX. NUMERICAL METHODS FOR CALCULATING NONEQUILIBRIUM VISCOUS FLOW FIELDS AND AERODYNAMIC HEAT ETC.  
*Period* *Obligations*  
07/16/1985-11/30/1993 FY93: \$15,523 TOTAL: \$404,053  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
F R DEJARNETTE LARC/E V ZOBY 41-Aero Engr

**NCC 1-112 North Carolina State Univ. - Raleigh 6312**  
STUDY OF THE TRANSITIONAL FLOW REGIME USING THE MONTE CARLO METHODS  
*Period* *Obligations*  
03/10/1987-03/14/1994 FY93: \$143,000 TOTAL: \$870,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
H A HASSAN LARC/K SUTTON 41-Aero Engr  
....J N MOSS

**NCC 1-140 North Carolina State Univ. - Raleigh 6313**  
STUDY OF NUMERICAL AND PHYSICAL ISSUES ASSOCIATED WITH CONTINUUM HYPERVELOCITY RE-ENTRY FLOWS  
*Period* *Obligations*  
01/31/1990-11/30/1993 FY93: \$22,304 TOTAL: \$176,677  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
G V CANDLER LARC/K SUTTON 41-Aero Engr  
....P A GNOFFO

**NCC 1-141 North Carolina State Univ. - Raleigh 6314**  
DEVELOPMENT OF MODEL SYSTEMS DYNAMICS MEASUREMENTS AND MONITORING SYSTEM FOR NATIONAL TRANSONIC FAC.  
*Period* *Obligations*  
04/17/1990-10/31/1993 FY93: \$86,426 TOTAL: \$351,249  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
F R DEJARNETTE LARC/J S HILL 41-Aero Engr  
....D E FULLER

**NCC 1-153 North Carolina State Univ. - Raleigh 6315**  
A COMPUTATIONAL AND EXPERIMENTAL INVESTIGATION OF A THREE DIMENSIONAL HYPERSONIC SCRAMJET INLET FLO  
*Period* *Obligations*  
05/24/1991-04/30/1993 FY93: \$783 TOTAL: \$42,455  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J N PERKINS LARC/C G MILLER 41-Aero Engr  
....F M SMITH

**NCC 1-154 North Carolina State Univ. - Raleigh 6316**  
TRANSPORT HIGH-LIFT FLIGHT RESEARCH  
*Period* *Obligations*  
05/15/1991-08/15/1994 FY93: \$43,840 TOTAL: \$89,896  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J N PERKINS LARC/L P YIP 41-Aero Engr  
J HARDING

**NCC 1-162 North Carolina State Univ. - Raleigh 6317**  
AN EXPERIMENTAL INVESTIGATION OF SUCTION BOUNDARY LAYER CONTROL ON LEADING EDGE FLAPS  
*Period* *Obligations*  
02/28/1992-02/20/1994 FY93: \$33,398 TOTAL: \$66,591  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J N PERKINS LARC/P L COE 41-Aero Engr

**NCC 1-168 North Carolina State Univ. - Raleigh 6318**  
MULTIDISCIPLINARY DESIGN AND OPTIMIZATION TECH- NICQUES FOR CONCEPTUAL AEROSPACE VEHICLE DESIGN  
*Period* *Obligations*  
08/31/1992-08/31/1993 FY93: \$22,906 TOTAL: \$38,250  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
G D WALBERG LARC/W T DAVIS 42-Astro Engr

**NCC 1-169 North Carolina State Univ. - Raleigh 6319**  
SEMI-SPAN MODEL TESTING IN THE NATIONAL TRANSONIC FACILITY - A NUMERICAL STUDY  
*Period* *Obligations*  
09/22/1992-10/30/1993 FY93: \$31,966 TOTAL: \$41,486  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
N CHOKANI LARC/J A AL-SADI 41-Aero Engr  
....R A WAHLS

**NCC 1-170 North Carolina State Univ. - Raleigh 6320**  
AN EVALUATION OF RUSSIAN ANALYSES OF HIGH-TEMPERA- TURE NONEQUILIBRIUM GAS FLOWS  
*Period* *Obligations*  
02/03/1993-05/30/1994 FY93: \$95,079 TOTAL: \$95,079  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
G D WALBERG LARC/P A GNOFFO 41-Aero Engr

**NASA'S UNIVERSITY PROGRAM**  
**NORTH CAROLINA (Continued)**

**NCC 1-183 North Carolina State Univ. - Raleigh 6321**  
 AN EXPERIMENTAL STUDY OF HIGH SPEED CONE BOUNDARY  
 LAYER STABILITY AND TRANSITION NLPN 93-514  

<i>Period</i>	<i>Obligations</i>	
07/21/1993-05/31/1994	FY93: \$4,010	TOTAL: \$4,010
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
N CHEKANI	LARC/S P WILKINSON	41-Aero Engr
J J LACHOWICZ		

**NCC 1-185 North Carolina State Univ. - Raleigh 6322**  
 SYSTEMS ANALYSIS AND TECHNOLOGY APPLICATIONS FOR  
 AEROSPACE VEHICLES  

<i>Period</i>	<i>Obligations</i>	
08/10/1993-08/14/1994	FY93: \$27,282	TOTAL: \$27,282
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
G D WALBERG	LARC/H W STONE	42-Astro Engr
J R OLDS	....L F ROWELL	

**NCC 2-101 North Carolina State Univ. - Raleigh 6323**  
 PLANT GROWTH IN CONTROLLED ENVIRONMENTS IN RESPONSE  
 TO CHARACTERISTICS OF NUTRIENT SOLUTIONS  

<i>Period</i>	<i>Obligations</i>	
01/01/1981-02/28/1994	FY93: \$50,000	TOTAL: \$853,957
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
C D RAPERJR	ARC/R MACELROY	55-Agriculture Sci
L T HENRY		

**NGT 00-030-117 North Carolina State Univ. - Raleigh 6324**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  

<i>Period</i>	<i>Obligations</i>	
11/02/1992-08/31/1993	FY93: \$44,000	TOTAL: \$44,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
C C SPAUR	HQ/G ASRAR	39-Env Sci, NEC
	....D M BUTLER	

**NGT 00-040-031 North Carolina State Univ. - Raleigh 6325**  
 NATIONAL SPACE GRANT COLLEGE AND FELLOWSHIP PROGRAM  

<i>Period</i>	<i>Obligations</i>	
03/22/1991-02/28/1994	FY93: \$205,000	TOTAL: \$525,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
G N WALBERG	HQ/L KEFFER	99-Multi-Discip

**NGT 00-050-591 North Carolina State Univ. - Raleigh 6326**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  

<i>Period</i>	<i>Obligations</i>	
08/27/1990-09/30/1993	FY93: \$0	TOTAL: \$44,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
W J RASDORF	HQ/F C OWENS	44-Civil Engr

**NGT 00-051-005 North Carolina State Univ. - Raleigh 6327**  
 NGT-51005/NORTH CAROLINA STATE UNIV/GRADUATE STUDENT  
 RESEARCHRS PROGRAM  

<i>Period</i>	<i>Obligations</i>	
08/18/1992-06/30/1993	FY93: \$0	TOTAL: \$22,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
G V CANDLER	LARC/E PRIOR	41-Aero Engr

**NGT 00-070-161 North Carolina State Univ. - Raleigh 6328**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
 MINORITY FOCUS PROGRAM  

<i>Period</i>	<i>Obligations</i>	
09/18/1989-02/28/1993	FY93: \$0	TOTAL: \$57,150
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
J N PERKINS	HQ/F C OWENS	46-Mech Engr

**NGT 00-070-236 North Carolina State Univ. - Raleigh 6329**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
 MINORITY FOCUS PROGRAM  

<i>Period</i>	<i>Obligations</i>	
09/17/1991-08/31/1994	FY93: \$44,000	TOTAL: \$66,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
G LUCOUSKY	LERC/F MONTEGANI	13-Physics

**NGT 00-090-126 North Carolina State Univ. - Raleigh 6330**  
 UNDERGRADUATE STUDENT RESEARCHERS PROGRAM/UMF  

<i>Period</i>	<i>Obligations</i>	
10/29/1992-08/14/1994	FY93: \$23,000	TOTAL: \$23,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
R TURNER	HQ/D K RUSSELL	99-Multi-Discip

**NGT 00-090-225 North Carolina State Univ. - Raleigh 6331**  
 UNDERGRADUATE STUDENT RESEARCHERS (UMF) PROGRAM  

<i>Period</i>	<i>Obligations</i>	
09/17/1993-08/14/1994	FY93: \$12,000	TOTAL: \$12,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
R TURNER	HQ/D K RUSSELL	99-Multi-Discip

**NGT 00-090-135 Pembroke State University 6332**  
 UNDERGRADUATE STUDENT RESEARCHERS PROGRAM (UMF)  

<i>Period</i>	<i>Obligations</i>	
10/08/1992-08/14/1993	FY93: \$12,000	TOTAL: \$12,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
A LOCKLEAR	HQ/D K RUSSELL	99-Multi-Discip

**NGT 00-090-136 Pembroke State University 6333**  
 UNDERGRADUATE STUDENT RESEARCHERS PROGRAM (UMF)  

<i>Period</i>	<i>Obligations</i>	
11/02/1992-08/14/1994	FY93: \$24,000	TOTAL: \$24,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
A LOCKLEAR	HQ/D K RUSSELL	99-Multi-Discip

**NGT 00-090-041 Shaw University 6334**  
 UNDERGRADUATE STUDENT RESEARCHERS PROGRAM (UMF)  

<i>Period</i>	<i>Obligations</i>	
08/22/1991-08/31/1994	FY93: \$36,000	TOTAL: \$109,871
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
M CLAYTON	HQ/B WHITE	49-Engr, NEC

**NAG 5-2023 University of North Carolina - Ashville 6335**  
 POLAR CAP MODELS OF PULSAR GAMMA RAY EMISSION  

<i>Period</i>	<i>Obligations</i>	
07/17/1992-07/31/1993	FY93: \$42,805	TOTAL: \$71,341
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
J K DAUGHERTY	GSFC/J P NORRIS	11-Astronomy
	....N WHITE	

**NASA'S UNIVERSITY PROGRAM  
NORTH CAROLINA (Continued)**

**NAG 2-181 University of North Carolina - Chapel Hill 6336**  
BIOCHEMICAL CHANGES IN BONE IN A MODEL OF  
WEIGHTLESSNESS  
*Period* *Obligations*  
06/01/1982-06/30/1992 FY93: \$0 TOTAL: \$957,528  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
G MECHANIC ARC/S B ARNAUD 56-Medical Sciences

**NAG 2-391 University of North Carolina - Chapel Hill 6337**  
FLUID MOVEMENT IN BONE: ITS RELATION TO MINERAL DYNAMICS  
AND HYPOGRAVIC OSTEOPOROSIS  
*Period* *Obligations*  
05/01/1986-11/30/1992 FY93: \$774 TOTAL: \$366,742  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R M DILLAMAN ARC/S B ARNAUD 51-Biological Sci  
R D ROER

**NAG 5-2116 University of North Carolina - Chapel Hill 6338**  
CHROMOSPHERIC ACTIVITY IN THE SUBGIANT BRANCH  
*Period* *Obligations*  
10/08/1992-01/31/1994 FY93: \$10,000 TOTAL: \$10,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
S C BALACHANDRAN GSFC/D WEST 11-Astronomy

**NAGW 834 University of North Carolina - Chapel Hill 6339**  
SEASONAL VARIATIONS IN ISOTOPIC SIGNATURES OF METHANE  
*Period* *Obligations*  
10/01/1985-12/31/1992 FY93: \$0 TOTAL: \$612,870  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
C S MARTENS HQ/M J KURYLO 39-Env Sci, NEC  
....R T WATSON

**NAGW 1455 University of North Carolina - Chapel Hill 6340**  
RADON TRACING OF BIOGENIC GAS FLUXES FROM COASTAL  
WETLANDS  
*Period* *Obligations*  
09/08/1988-12/31/1993 FY93: \$100,000 TOTAL: \$726,643  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
C S MARTENS HQ/D E WICKLAND 39-Env Sci, NEC

**NAGW 1576 University of North Carolina - Chapel Hill 6341**  
INFRARED SPECTROSCOPY OF NEUTRAL AND IONIC WATER  
COMPLEXES  
*Period* *Obligations*  
12/21/1988-11/30/1993 FY93: \$39,996 TOTAL: \$220,909  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R E MILLER HQ/J T BERGSTRAHL 11-Astronomy

**NAGW 1842 University of North Carolina - Chapel Hill 6342**  
COLLABORATIVE AND INTEGRATED STUDIES OF THE  
GRAVITATIONAL  
*Period* *Obligations*  
09/20/1989-11/30/1992 FY93: \$0 TOTAL: \$19,998  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
T K SOOTT HQ/T HALSTEAD 51-Biological Sci

**NAGW 2934 University of North Carolina - Chapel Hill 6343**  
THE ASTROPHYSICS OF HYDRODYNAMICS FLOWS IN COMPACT  
INTERACTING BINARIES  
*Period* *Obligations*  
02/27/1992-12/31/1993 FY93: \$18,785 TOTAL: \$48,785  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J M BLONDIN HQ/L J KALUZIENSKI 11-Astronomy  
C EVANS ....A N BUNNER

**NAGW 3681 University of North Carolina - Chapel Hill 6344**  
CONTROLS ON FLUXES AND ISOTOPIC COMPOSITION OF BIO GENIC  
GASES FROM WETLANDS, RIVERS AND FLOODED FOR  
*Period* *Obligations*  
07/23/1993-04/30/1994 FY93: \$100,000 TOTAL: \$100,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
C S MARTENS HQ/D E WICKLAND 39-Env Sci, NEC  
W USSLER III ....A C JANETOS

**NGT 00-030-068 University of North Carolina - Chapel Hill 6345**  
NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period* *Obligations*  
09/16/1991-08/31/1992 FY93: \$0 TOTAL: \$22,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
D G BROWN HQ/D M BUTLER 39-Env Sci, NEC  
S J WALSH ....G S WILSON

**NGT 00-050-656 University of North Carolina - Chapel Hill 6346**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period* *Obligations*  
09/13/1990-08/31/1993 FY93: \$0 TOTAL: \$66,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
C S MARTENS HQ/F C OWENS 39-Env Sci, NEC

**NCA 2-629 University of North Carolina-Greensboro 6347**  
HR90 AND HR77 STATISTICAL ANALYSIS  
*Period* *Obligations*  
07/01/1991-06/30/1993 FY93: \$0 TOTAL: \$20,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
D A LUDWIG ARC/J VERNIKOS 21-Mathematics

**NAG 1-1414 University of North Carolina, Charlotte 6348**  
DYNAMICS AND CONTROL OF FLEXIBLE MULTI-BODY SPACE  
SYSTEMS  
*Period* *Obligations*  
03/20/1992-03/19/1994 FY93: \$49,000 TOTAL: \$79,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
Y P KAKAD LARC/E S ARMSTRONG 42-Astro Engr  
....S M JOSHI

**NAG 5-1169 University of North Carolina, Charlotte 6349**  
RESEARCH RELATIVE TO THE MAGNETROSTRICTIVE PROCESS  
*Period* *Obligations*  
07/01/1989-06/30/1992 FY93: \$2,998 TOTAL: \$102,002  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
P H DEHOFF GSFC/J M VRANISH 46-Mech Engr  
D P NAIK

**NAG 5-1503 University of North Carolina, Charlotte 6350**  
TWO-PHASE TO TWO-PHASE HEAT ANALYSIS  
*Period* *Obligations*  
04/09/1991-07/31/1992 FY93: \$266 TOTAL: \$19,494  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R H KIM GSFC/T D SWANSON 42-Astro Engr  
....J DIDION



**NASA'S UNIVERSITY PROGRAM  
NORTH CAROLINA (Continued)**

**NAG 5-2038 University of North Carolina, Charlotte 6351**  
DESIGN AND SIMULATION OF EVA TOOLS FOR FIRST SERVING  
MISSION OF HST

Period	Obligations	
07/15/1992-07/14/1994	FY93: \$90,000	TOTAL: \$120,000
Prin. Invest.	NASA Tech. Officer	CASE Category
P H DEHOFF	GSFC/M S JASTER	46-Mech Engr
D NAIK	...../P W RICHARDS	

**NAS 2-10523 Wake Forest University 6352**  
CORRELATION OF MICRO AND MICROCIRCULATORY ALTERATIONS  
DURING WEEIGHTLESSNESS

Period	Obligations	
01/17/1980-12/31/1994	FY93: \$0	TOTAL: \$2,050,560
Prin. Invest.	NASA Tech. Officer	CASE Category
P M HUTCHINS	ARC/G C JAHNS	51-Biological Sci
	...../P D SEBESTA	

**NCC 1-55 Wake Forest University 6353**  
QUANTUM CHEMICAL STUDY OF METHANE OXIDATION SPECIES

Period	Obligations	
06/04/1981-12/31/1993	FY93: \$59,511	TOTAL: \$361,997
Prin. Invest.	NASA Tech. Officer	CASE Category
C F JACKELS	LARC/D H PHILLIPS	12-Chemistry
	...../R S ROGOWSKI	

**NGT 00-090-050 Winston-Salem State University 6354**  
UNDERGRADUATE STUDENT RESEARCHERS PRG

Period	Obligations	
08/22/1991-08/31/1994	FY93: \$24,000	TOTAL: \$57,693
Prin. Invest.	NASA Tech. Officer	CASE Category
W ATKINSON	HQ/D RUSSELL	99-Multi-Discip

**NORTH DAKOTA**

**NAG 3-1312 North Dakota State University 6355**  
STUDIES IN ACCELERATED CONVERGENCE

Period	Obligations	
12/23/1991-09/14/1993	FY93: \$1	TOTAL: \$111,050
Prin. Invest.	NASA Tech. Officer	CASE Category
D K COPE	LERC/W F FORD	21-Mathematics
Y XU	...../J A PENNLIN	

**NAGW 3620 Turtle Mountain Community College 6356**  
RECRUITMENT AND RETENTION OF INDIANS IN SCIENCE AND  
ENGINEERING

Period	Obligations	
05/28/1993-05/31/1994	FY93: \$25,000	TOTAL: \$25,000
Prin. Invest.	NASA Tech. Officer	CASE Category
S KARNAWAT	HQ/B WHITE	99-Multi-Discip

**NAG 1-1351 University of North Dakota 6357**  
IN SITU MEASUREMENTS IN SUPPORT OF THE FIRE CIRRUS  
INTENSIVE FIELD OBSERVATIONS - II

Period	Obligations	
10/21/1991-09/30/1994	FY93: \$50,577	TOTAL: \$226,827
Prin. Invest.	NASA Tech. Officer	CASE Category
M R POELLOT	LARC/D S MCDUGAL	31-Atmos Sci
	...../T L OWENS	

**NAG 3-1476 University of North Dakota 6358**  
CONTACT ANALYSIS IN SPIRAL BEVEL GEARS

Period	Obligations	
03/08/1993-03/07/1994	FY93: \$11,425	TOTAL: \$11,425
Prin. Invest.	NASA Tech. Officer	CASE Category
G D BIBEL	LERC/R F HANDSCHUH	46-Mech Engr
	...../J J COY	

**NGT 00-040-043 University of North Dakota 6359**  
NATIONAL SPACE GRANT COLLEGE AND FELLOWSHIP PROGRAM

Period	Obligations	
05/24/1991-02/28/1994	FY93: \$173,000	TOTAL: \$493,000
Prin. Invest.	NASA Tech. Officer	CASE Category
C A WOOD	HQ/E T SCHWARTZ	99-Multi-Discip

**OHIO**

**NAG 3-1528 Baldwin - Wallace College 6360**  
CHARACTERIZATION OF ION EXCHANGE POLYACRYLATE FILMS  
FOR ENVIRONMENTAL DECONTAMINATION

Period	Obligations	
09/23/1993-09/23/1994	FY93: \$6,600	TOTAL: \$6,600
Prin. Invest.	NASA Tech. Officer	CASE Category
J GROSE	LERC/A F RATAJCZAK	47-Materials Engr

**NCC 3-157 Baldwin - Wallace College 6361**  
STATISTICAL MECHANICS OF FLUID IN A REDUCED GRAVITY  
ENVIRONMENT

Period	Obligations	
12/20/1989-10/15/1993	FY93: \$0	TOTAL: \$105,800
Prin. Invest.	NASA Tech. Officer	CASE Category
D G PROCTOR	LERC/R W VERNON	13-Physics

**NCC 3-268 Baldwin - Wallace College 6362**  
CHARACTERIZATION OF ION EXCHANGE POLYACRYLATE FILMS  
FOR ENVIRONMENTAL DECONTAMINATION

Period	Obligations	
06/02/1992-07/22/1994	FY93: \$6,000	TOTAL: \$21,000
Prin. Invest.	NASA Tech. Officer	CASE Category
J GORSE	LERC/K W STREET	12-Chemistry
	...../W H PHILIPP	

**NCC 3-300 Baldwin - Wallace College 6363**  
STUDY OF THE PREPARATION AND CHEMISTRY OF NOVEL OXIDE  
COATINGS

Period	Obligations	
03/16/1993-03/11/1994	FY93: \$23,000	TOTAL: \$23,000
Prin. Invest.	NASA Tech. Officer	CASE Category
J W MCCARGAR	LERC/E G WINTUCKY	12-Chemistry

**NCC 3-315 Baldwin - Wallace College 6364**  
COMBUSTION, FLUIDS AND MATERIALS EXPERIMENTS IN A  
REDUCED GRAVITY ENVIRONMENT

Period	Obligations	
08/05/1993-03/25/1994	FY93: \$87,200	TOTAL: \$87,200
Prin. Invest.	NASA Tech. Officer	CASE Category
D G PROCTOR	LERC/J M FLOWERS	13-Physics
	...../H ROSS	

**NASA'S UNIVERSITY PROGRAM**  
**OHIO (Continued)**

**NAG 3-406 Case Western Reserve University 6365**  
CASE EARLY EXPOSURE TO ENGINEERING FOR MINORITY  
STUDENTS AND MINORITY ENGINEERS INDUSTRIAL MINORITY PR  
*Period Obligations*  
03/07/1983-11/30/1993 FY93: \$1 TOTAL: \$186,114  
*Prin. Invest. NASA Tech. Officer CASE Category*  
M E BOULDING LERC/R F LAWRENCE 49-Engr, NEC  
....J A BIAGLOW

**NAG 3-686 Case Western Reserve University 6366**  
HEAT FLUX SENSOR CALIBRATION  
*Period Obligations*  
12/19/1985-04/12/1994 FY93: \$18,875 TOTAL: \$504,195  
*Prin. Invest. NASA Tech. Officer CASE Category*  
A DYBBS LERC/C H LIEBERT 46-Mech Engr

**NAG 3-758 Case Western Reserve University 6367**  
STRUCTURAL AND ELECTRICAL CHARACTERIZATION OF LATTIC  
DEFECTS IN B-SIC  
*Period Obligations*  
11/14/1986-11/19/1993 FY93: \$100,737 TOTAL: \$620,158  
*Prin. Invest. NASA Tech. Officer CASE Category*  
P PIROUZ LERC/J A POWELL 47-Materials Engr

**NAG 3-795 Case Western Reserve University 6368**  
INTERACTION OF MOLECULES AND PARTICLES BY ANALYSIS \*\*OF  
COMPUTED TRAJECTORIES  
*Period Obligations*  
04/20/1987-10/31/1993 FY93: \$60,000 TOTAL: \$388,460  
*Prin. Invest. NASA Tech. Officer CASE Category*  
I GREBER LERC/D C FERGUSON 13-Physics  
H WACHMAN ....C K PURVIS

**NAG 3-814 Case Western Reserve University 6369**  
TWIN PLANES AND HIGH SUPERCONDUCTIVITY  
*Period Obligations*  
07/27/1987-05/18/1993 FY93: \$0 TOTAL: \$280,024  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D E FARRELL LERC/P R ARON 13-Physics  
B S CHANDRASEKHAN

**NAG 3-832 Case Western Reserve University 6370**  
INVERS OF X-RAY TRANSF IN ANGULAR RANGE  
*Period Obligations*  
11/03/1987-11/12/1993 FY93: \$26,800 TOTAL: \$186,799  
*Prin. Invest. NASA Tech. Officer CASE Category*  
S H IZEN LERC/A J DECKER 21-Mathematics

**NAG 3-856 Case Western Reserve University 6371**  
FRACTURE MECHANICS OF CERAMIC MATRIX COMPOSTES  
*Period Obligations*  
12/21/1987-02/11/1994 FY93: \$50,318 TOTAL: \$330,276  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R BALLARINI LERC/B GROSS 47-Materials Engr  
....S J KLIMA

**NAG 3-886 Case Western Reserve University 6372**  
GRAVITY-DEPENDENT TRANSPORT IN INDUSTRIAL PROCESSES  
*Period Obligations*  
04/12/1988-03/29/1994 FY93: \$160,000 TOTAL: \$1,059,774  
*Prin. Invest. NASA Tech. Officer CASE Category*  
S OSTRACH LERC/A J RATAJCZAK 45-Elec Engr  
Y KAMOTANI

**NAG 3-922 Case Western Reserve University 6373**  
INVEST THE USE OF PARALLEL ASSO MEM TECH IN SPACE STATION  
POWER SYS AUTON CONTROL  
*Period Obligations*  
08/01/1988-07/31/1993 FY93: \$50,000 TOTAL: \$250,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
Y PAO LERC/J L DOLCE 45-Elec Engr  
D J SOBAJIC ....J F SELLERS

**NAG 3-980 Case Western Reserve University 6374**  
MEASUREMENTS FOR ROTORDYNAMIC COEFFICIENTS OF HYDR  
OSTATIC BEARINGS  
*Period Obligations*  
01/25/1989-06/30/1993 FY93: \$46,520 TOTAL: \$242,540  
*Prin. Invest. NASA Tech. Officer CASE Category*  
M L ADAMS LERC/R J CAPALDI 46-Mech Engr

**NAG 3-1027 Case Western Reserve University 6375**  
OPTIMAL DESIGN OF ORTHOPAEDIC IMPLANTS  
*Period Obligations*  
04/13/1989-05/31/1994 FY93: \$0 TOTAL: \$350,984  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D T DAVY ARC/D A HOPKINS 49-Engr, NEC  
....C C CHAMIS

**NAG 3-1046 Case Western Reserve University 6376**  
MODELING OF SOLID FUEL COMBUSTION IN VERY LOW-SPEE D  
OXYGEN STREAMS  
*Period Obligations*  
05/18/1989-06/07/1994 FY93: \$116,425 TOTAL: \$387,405  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J S T'EN LERC/J A SALZMAN 49-Engr, NEC

**NAG 3-1103 Case Western Reserve University 6377**  
PARTIONING AND SCHEDULING OF FINE GRAIN COMPUTATIO NS  
INTO PARALLEL MICROACHITECTURES  
*Period Obligations*  
12/12/1989-09/05/1993 FY93: \$0 TOTAL: \$147,086  
*Prin. Invest. NASA Tech. Officer CASE Category*  
C A PAPACHRISTOU LERC/D J ARPASI 22-Computer Science  
....J R SZUCH

**NAG 3-1111 Case Western Reserve University 6378**  
ANALYSIS OF IMPEDANCE OF POROUS NICKEL/NICKEL-OXID E  
ELECTRODE STRUCTURES  
*Period Obligations*  
01/09/1990-02/10/1993 FY93: \$0 TOTAL: \$60,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
B D CAHAN LERC/M A REID 43-Chem Engr  
O E CAFE

**NAG 3-1130 Case Western Reserve University 6379**  
MODELING OF SHOCK BOUNDARY LAYER INTERACTIONS WITH  
BLEED  
*Period Obligations*  
01/16/1990-12/14/1993 FY93: \$12,527 TOTAL: \$61,174  
*Prin. Invest. NASA Tech. Officer CASE Category*  
E RESHOTKO LERC/R E COLTRIN 41-Aero Engr

**NASA'S UNIVERSITY PROGRAM**  
**OHIO (Continued)**

**NAG 3-1141 Case Western Reserve University 6380**  
 COLLOIDAL PROCESSING STRATEGIES FOR FIBER-REINFORCED CERAMIC COMPOSITES  
*Period Obligations*  
 03/05/1990-02/14/1993 FY93: \$37,952 TOTAL: \$865,413  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D L FEKE LERC/R T BHATT 47-Materials Engr  
 ....S R LEVINE

**NAG 3-1282 Case Western Reserve University 6387**  
 ELECTROCAT, SUPPORT AND ELECTRODE STRUCT FOR O<sub>2</sub> ELECTRODES FOR SOLID POLYMER ELECTROLYTE REGEN FUEL C  
*Period Obligations*  
 05/23/1991-11/30/1992 FY93: \$0 TOTAL: \$40,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 G KLOPMAN LERC/R S BALDWIN 12-Chemistry  
 E B YEAGER ....J SINGER  
 D A TRYK

**NAG 3-1149 Case Western Reserve University 6381**  
 THE DEVELOPMENT OF SOLID STATE HYDROGEN AND OXYGEN SENSORS FOR ROCKET ENGINE LEAKAGE DETECTION  
*Period Obligations*  
 03/06/1990-12/31/1993 FY93: \$40,000 TOTAL: \$135,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 C C LIU LERC/G C MADZSAR 99-Multi-Discip

**NAG 3-1283 Case Western Reserve University 6388**  
 SURFACE ANALYSIS OF LDEF SPACECRAFT MATERIALS  
*Period Obligations*  
 05/24/1991-12/31/1991 FY93: \$0 TOTAL: \$33,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R W HOFFMAN LERC/D J BRINKER 45-Elec Engr

**NAG 3-1179 Case Western Reserve University 6382**  
 STABILITY OF FLOW THROUGH AXIAL COMPRESSION SYSTEM S  
*Period Obligations*  
 05/24/1990-11/09/1993 FY93: \$23,807 TOTAL: \$175,527  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 F E MCCAUGHAN LERC/F A NEWMAN 41-Aero Engr

**NAG 3-1303 Case Western Reserve University 6389**  
 SEQUENTIAL LOADING AT HIGH TEMPERATURE-CREEP AND CREEP-FATIGUE  
*Period Obligations*  
 10/29/1991-02/07/1994 FY93: \$49,878 TOTAL: \$109,878  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S S MANSON LERC/G R HALFORD 49-Engr, NEC  
 ....M A MCGAW

**NAG 3-1201 Case Western Reserve University 6383**  
 TIME DEPENDENT NUMERICAL SIMULATIONS OF SOLIDIFICATION PROCESSES  
*Period Obligations*  
 08/21/1990-01/31/1994 FY93: \$70,321 TOTAL: \$164,117  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 P L TAYLOR LERC/A CHAIT 13-Physics  
 ....T K GLASGOW

**NAG 3-1320 Case Western Reserve University 6390**  
 DESIGN OF DIGITAL TRACKER  
*Period Obligations*  
 01/23/1992-05/31/1993 FY93: \$0 TOTAL: \$20,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R V EDWARDS LERC/P S GREENBERG 45-Elec Engr

**NAG 3-1212 Case Western Reserve University 6384**  
 MODELING OF DIFFUSION FLAMES AT LOW STRETCH RATES  
*Period Obligations*  
 10/18/1990-02/21/1994 FY93: \$31,000 TOTAL: \$77,109  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J S TIEN LERC/H D ROSS 46-Mech Engr

**NAG 3-1337 Case Western Reserve University 6391**  
 INLET FLOW MODELING  
*Period Obligations*  
 03/19/1992-08/31/1993 FY93: \$29,242 TOTAL: \$67,653  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 F E MCCAUGHAN LERC/C K DRUMMOND 41-Aero Engr

**NAG 3-1232 Case Western Reserve University 6385**  
 FEEDBACK LINEARIZATION FOR CONTROL OF AIR BREATHING ENGINES  
*Period Obligations*  
 12/21/1990-02/28/1994 FY93: \$35,000 TOTAL: \$113,630  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S M PHILLIPS LERC/C F LORENZO 41-Aero Engr

**NAG 3-1362 Case Western Reserve University 6392**  
 MEASUREMENT OF CENTERING AND ROTORDYNAMIC COEFFICIENTS FOR AIR-LUBRICATED HYDRODYNAMIC JOURNAL BEARING  
*Period Obligations*  
 07/29/1992-09/30/1993 FY93: \$35,000 TOTAL: \$75,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M L ADAMS LERC/W A WONG 49-Engr, NEC  
 ....J G SCHREIBER

**NAG 3-1273 Case Western Reserve University 6386**  
 MICROFABRICATED SHEAR STRESS SENSORS  
*Period Obligations*  
 04/26/1991-01/09/1994 FY93: \$76,161 TOTAL: \$168,459  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M MEHREGANY LERC/W R HINGST 41-Aero Engr  
 R L MULLEN ....B P WILLIS

**NAG 3-1363 Case Western Reserve University 6393**  
 EXTRAPOLATION OF CREEP RUPTURE DATA BY MULTIHEAT ADDITION  
*Period Obligations*  
 08/26/1992-08/31/1993 FY93: \$0 TOTAL: \$69,859  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S S MANSON LERC/G R HALFORD 49-Engr, NEC

**NASA'S UNIVERSITY PROGRAM**  
**OHIO (Continued)**

**NAG 3-1412 Case Western Reserve University 6394**  
 DIRECTIONAL SOLIDIFICATION IN 3HE-4HE ALLOYS  
*Period Obligations*  
 12/30/1992-12/31/1993 FY93: \$75,000 TOTAL: \$75,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A J DAHM LERC/A CHAIT 47-Materials Engr  
 ....V PINES

**NAG 3-1438 Case Western Reserve University 6395**  
 DEVELOPMENT OF NOVEL THIN-FILM HEAT FLUX SENSORS  
*Period Obligations*  
 01/12/1993-12/31/1993 FY93: \$100,727 TOTAL: \$100,727  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M TABIB-AZAR LERC/G C FRALICK 46-Mech Engr

**NAG 3-1473 Case Western Reserve University 6396**  
 DEVELOPMENT OF INTEGRATED OPTIC SENSORS FOR AIRCRAFT CONTROL SYSTEMS  
*Period Obligations*  
 03/02/1993-03/02/1994 FY93: \$19,266 TOTAL: \$19,266  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M TABIB-AZAR LERC/G BEHEIM 45-Elec Engr

**NAG 3-1478 Case Western Reserve University 6397**  
 CHARACTERIZATION OF GALLIUM ARSENIDE MATERIAL FROM GALLIUM ARSENIDE/GET AWAY SPECIAL FLIGHT PROJECT  
*Period Obligations*  
 04/01/1993-03/29/1994 FY93: \$160,000 TOTAL: \$160,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D H MATTHIESEN LERC/R W LAUVER 19-Phys Sci, NEC

**NAG 3-1495 Case Western Reserve University 6398**  
 SUMMER 1993 STUDENT TECHNOLOGY EVALUATION PROGRAM (STEP)  
*Period Obligations*  
 04/29/1993-12/06/1993 FY93: \$80,020 TOTAL: \$80,020  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R M MASON LERC/K A VARIS 99-Multi-Discip  
 S CORT ....A F RATAJCZAK  
 C L RAHN

**NAG 3-1525 Case Western Reserve University 6399**  
 THEORETICAL STUDY OF ELECTRONIC STRUCTURE AND WORK FUNCTION OF A MODEL DISPENSER CATHODE SURFACE  
*Period Obligations*  
 09/09/1993-09/30/1994 FY93: \$20,814 TOTAL: \$20,814  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 B SEGALL LERC/I L KRAINSKY 13-Physics  
 W R LAMBRECHT  
 A G PETUKHOV

**NAG 3-1538 Case Western Reserve University 6400**  
 GRAVITY-DEPENDENT TRANSPORT PHENOMENA IN ZEOLITE CRYSTAL GROWTH  
*Period Obligations*  
 09/28/1993-05/14/1994 FY93: \$30,000 TOTAL: \$30,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S OSTRACH LERC/R L THOMPSON 47-Materials Engr  
 Y KAMOTARI

**NAG 3-1541 Case Western Reserve University 6401**  
 ANALYTICAL AND NUMERICAL ANALYSIS OF EJECTOR NOZZLE FLOWS  
*Period Obligations*  
 09/28/1993-09/27/1994 FY93: \$13,220 TOTAL: \$13,220  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 I GREEBER LERC/J K LYTLE 41-Aero Engr

**NAG 5-1451 Case Western Reserve University 6402**  
 HIGH ENERGY SOLAR FLARE DATA FROM OSSE/BATSE  
*Period Obligations*  
 08/27/1990-08/31/1993 FY93: \$21,000 TOTAL: \$150,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 G M FRYE GSFC/J P NORRIS 11-Astronomy  
 T L JENKINS ....D A KNIFFEN

**NAG 9-571 Case Western Reserve University 6403**  
 QUANTITATION OF HEAD AND GAZE STABILITY DURING NATURAL ACTIVITIES IN EARTH GRAVITY  
*Period Obligations*  
 01/28/1992-08/01/1994 FY93: \$20,000 TOTAL: \$79,100  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R J LEIGH JSC/D L HARM 51-Biological Sci

**NAGW 1193 Case Western Reserve University 6404**  
 CENTER FOR THE COMMERCIALIZATION OF SPACE  
*Period Obligations*  
 10/19/1987-10/31/1993 FY93: \$1,233,000 TOTAL: \$6,416,186  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J F WALLACE HQ/W A ORAN 99-Multi-Discip  
 E BAER ....A VILLAMIL

**NAS 3-25973 Case Western Reserve University 6405**  
 THERMOCOAPILLARY CONVECTION EXPERIMENT IN MICROGRAVITY  
*Period Obligations*  
 04/15/1991-04/30/1994 FY93: \$329,680 TOTAL: \$1,129,680  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S OSTRACH LERC/R L THOMPSON 49-Engr, NEC  
 Y KAMOTANI

**NAS 3-26054 Case Western Reserve University 6406**  
 COST REIMBURSEMENT (TASK ORDER) CONTRACT FOR SYMPO SIA AND REPORTS IN ELECTRO-PHYSICS  
*Period Obligations*  
 06/06/1990-06/05/1993 FY93: \$42,409 TOTAL: \$178,011  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 B SEGALL LERC/B BANKS 13-Physics  
 ....J DEVON

**NAS 8-39695 Case Western Reserve University 6407**  
 THE STUDY OF DOPANT SEGREGATION BEHAVIOR DURING THMICROGRAVITY  
*Period Obligations*  
 10/19/1992-09/30/1993 FY93: \$188,393 TOTAL: \$188,393  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D MATTHIESEN MSFC/L JETER 99-Multi-Discip

**NASA'S UNIVERSITY PROGRAM**  
**OHIO (Continued)**

**NAS 8-39722 Case Western Reserve University 6408**  
STUDY OF DOPART SEGREGATION  
*Period* *Obligations*  
04/30/1993-10/29/1993 FY93: \$100,000 TOTAL: \$100,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
D MATTHIESEN MSFC/L JETER 99-Multi-Discip

**NCC 3-25 Case Western Reserve University 6409**  
THEORETICAL STUDIES OF THE TRANSPORT PROPERTIES IN  
SELECTIVITY DOPES III-V SEMICONDUCTING HETERO STR  
*Period* *Obligations*  
02/16/1993-12/17/1993 FY93: \$15,000 TOTAL: \$257,981  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
B SEGALL LERC/E HAUGLAND 13-Physics  
...../S A ALTEROVITZ

**NCC 3-30 Case Western Reserve University 6410**  
TRANSIENT ELASTOHYDRODYNAMIC LUBRICATION IN STARVED  
CONJUNCTIONS  
*Period* *Obligations*  
05/09/1983-04/11/1994 FY93: \$163,802 TOTAL: \$1,368,341  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J M PRAHL LERC/S V PEPPER 46-Mech Engr  
J R JENG ...../C DELLACORTE

**NCC 3-73 Case Western Reserve University 6411**  
THEOR. AND EXPMTL. INV. OF PYROLITIC COATINGS OF MAT ERIALS  
BY CHEMICAL VAPOR DEPOSITION  
*Period* *Obligations*  
11/17/1986-07/05/1993 FY93: \$25,489 TOTAL: \$791,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
P PIROUZ LERC/C A STEARNS 19-Phys Sci, NEC  
S GOKOGLU ...../D R BEHRENDT

**NCC 3-74 Case Western Reserve University 6412**  
SOLIDIFICATION FUNDAMENTALS  
*Period* *Obligations*  
12/22/1986-03/31/1992 FY93: \$0 TOTAL: \$1,153,930  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
V LAXMANAN LERC/T K GLASGOW 47-Materials Engr  
J F WALLACE ...../B N ROSENTHAL

**NCC 3-85 Case Western Reserve University 6413**  
ABSOLUTE IGN DELOY X'S FOR HYDR-OXY COMB FROM  
MEASUREMENTS MODE NEAR THE END WALL OF A SHOCK  
TABLE  
*Period* *Obligations*  
05/22/1987-12/31/1993 FY93: \$28,021 TOTAL: \$306,671  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J M PRAHL LARC/M J RABINOWITZ 12-Chemistry  
...../E A LEZBERG

**NCC 3-90 Case Western Reserve University 6414**  
DEVELOPING ONGOING EVAL TO SUPPORT PLANNED CHANGE  
*Period* *Obligations*  
07/01/1987-09/21/1994 FY93: \$54,000 TOTAL: \$105,400  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
D A KOLB LERC/R L REAMES 79-Soc Sci, NEC

**NCC 3-94 Case Western Reserve University 6415**  
INCR THERMAL FATIQUE RESIST OF COPER BASED ALLOYDS  
*Period* *Obligations*  
07/24/1987-12/31/1993 FY93: \$112,722 TOTAL: \$429,600  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
G M MICHAL LERC/H R GRAY 47-Materials Engr  
D L ELLIS

**NCC 3-99 Case Western Reserve University 6416**  
HI FREQ WIDE BAND OPTICAL COMMUN  
*Period* *Obligations*  
12/09/1987-07/12/1993 FY93: \$4,289 TOTAL: \$156,808  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
P C CLASPY LERC/K B BHASIN 45-Elec Engr  
...../R F LEONARD

**NCC 3-103 Case Western Reserve University 6417**  
PHASE SHIFTING INTERFEROMETRY  
*Period* *Obligations*  
12/01/1987-11/30/1992 FY93: \$3,917 TOTAL: \$198,867  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
E M HAACK LERC/A J DECKER 19-Phys Sci, NEC

**NCC 3-112 Case Western Reserve University 6418**  
SYNTHESIS AND PROCESSING OF ADV. POLYMER SYSTEMS SAME  
*Period* *Obligations*  
06/25/1988-11/30/1993 FY93: \$176,132 TOTAL: \$930,621  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
C N JUKENIK LERC/M A MEADOR 12-Chemistry  
...../J K SUTTER

**NCC 3-118 Case Western Reserve University 6419**  
MOCVD DEPOSITION OF PHOTOVALTAIC MATERIALS  
*Period* *Obligations*  
10/24/1988-09/30/1993 FY93: \$0 TOTAL: \$306,062  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R W HOFFMAN LERC/I WEINBERG 13-Physics  
...../D J FLOOD

**NCC 3-124 Case Western Reserve University 6420**  
ENVIROMENTAL EFFECTS ON TRANSITION AND THE CONTROL OF  
TRANSITION  
*Period* *Obligations*  
12/21/1988-06/27/1994 FY93: \$120,412 TOTAL: \$825,411  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
E RESHOTKO LERC/L A POVINELLI 41-Aero Engr

**NCC 3-129 Case Western Reserve University 6421**  
PREP AND CHARACTERIZATION OF CERAMIC SUPERCONDUCTOR  
FIBERS  
*Period* *Obligations*  
02/01/1989-12/31/1992 FY93: \$0 TOTAL: \$437,959  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
M R DEGUIRE LERC/S R LEVINE 47-Materials Engr

**NCC 3-133 Case Western Reserve University 6422**  
SYNTHESIS AND CHARACTERIZATION OF HIGH-TECH CERAMICS  
AND COMPOSITES  
*Period* *Obligations*  
03/21/1989-01/31/1992 FY93: \$0 TOTAL: \$378,514  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
N P BANSAL LERC/M H JASKOWIAK 47-Materials Engr  
A R COOPER ...../S R LEVINE

**NASA'S UNIVERSITY PROGRAM**  
**OHIO (Continued)**

**NCC 3-139 Case Western Reserve University 6423**  
CERAMIC PROCESSING  
*Period Obligations*  
05/08/1989-12/31/1993 FY93: \$117,240 TOTAL: \$294,336  
*Prin. Invest. NASA Tech. Officer CASE Category*  
W S WILLIAMS LERC/S R LEVINE 47-Materials Engr  
J CAWLEY

**NCC 3-140 Case Western Reserve University 6424**  
THERMOCAPILLARY AND ELECTROCAPILLARY EFFECTS IN REDUCED GRAVITY  
*Period Obligations*  
05/15/1989-05/14/1994 FY93: \$343,856 TOTAL: \$1,408,027  
*Prin. Invest. NASA Tech. Officer CASE Category*  
Y KAMOTANI LERC/R W VERNON 46-Mech Engr

**NCC 3-141 Case Western Reserve University 6425**  
OXYGEN INTERACTION WITH SPACE-POWER MATERIALS  
*Period Obligations*  
05/22/1989-01/12/1995 FY93: \$49,942 TOTAL: \$456,785  
*Prin. Invest. NASA Tech. Officer CASE Category*  
T G ECK LERC/D C FERGUSON 13-Physics  
R W HOFFMAN ....C K PURVIS

**NCC 3-144 Case Western Reserve University 6426**  
DEVELOPMENT OF NIA1-BASED ALLOYS AND COMPOSITE MATERIALS FOR ELEVATED TEMPERATURE USE  
*Period Obligations*  
07/07/1989-12/31/1993 FY93: \$176,607 TOTAL: \$579,661  
*Prin. Invest. NASA Tech. Officer CASE Category*  
G M MICHAL LERC/H R GRAY 47-Materials Engr

**NCC 3-152 Case Western Reserve University 6427**  
POLYDIACETYLENE LANGMUIR BLODGETT FILMS FOR ELECTRONIC APPLICATIONS  
*Period Obligations*  
11/05/1989-10/31/1993 FY93: \$0 TOTAL: \$57,933  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J B LANDO LERC/C H UANG 12-Chemistry

**NCC 3-166 Case Western Reserve University 6428**  
EVALUATION OF LASER-LIGHT SCATTERING HARDWARE FOR MICRO-GRAVITY EXPERIMENTS  
*Period Obligations*  
03/06/1990-06/27/1994 FY93: \$95,825 TOTAL: \$283,643  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J A MANN LERC/T K GLASGOW 47-Materials Engr

**NCC 3-170 Case Western Reserve University 6429**  
A RESEARCH PROJECT ON LASER LIGHT SCATTERING  
*Period Obligations*  
03/16/1990-03/14/1994 FY93: \$119,506 TOTAL: \$303,675  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J F WALLACE LERC/T K GLASGOW 47-Materials Engr

**NCC 3-181 Case Western Reserve University 6430**  
NUMERICAL COMPUTATION OF VORTEX DYNAMICS  
*Period Obligations*  
09/19/1990-09/03/1992 FY93: \$0 TOTAL: \$66,820  
*Prin. Invest. NASA Tech. Officer CASE Category*  
I GREBER LERC/B H ANDERSON 41-Aero Engr

**NCC 3-202 Case Western Reserve University 6431**  
JOINT CASE/NASA LERC INSTITUTE FOR COMPUTATIONAL MECHANICS IN PROPULSION (ICOMP)  
*Period Obligations*  
02/08/1991-01/02/1992 FY93: \$8,402 TOTAL: \$1,201,598  
*Prin. Invest. NASA Tech. Officer CASE Category*  
I GREBER LERC/L A POVINELLI 41-Aero Engr

**NCC 3-206 Case Western Reserve University 6432**  
IGNITION AND FLAME SPREAD OF LIQUID FUEL POOLS  
*Period Obligations*  
02/14/1991-03/31/1994 FY93: \$150,000 TOTAL: \$333,189  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J S T'EN LERC/H D ROSS 46-Mech Engr

**NCC 3-217 Case Western Reserve University 6433**  
PROPOSAL TO STUDY ELASTIC SCATTERING OF ELECTRONS FOR COPPER SURFACES  
*Period Obligations*  
05/08/1991-09/30/1991 FY93: \$0 TOTAL: \$4,920  
*Prin. Invest. NASA Tech. Officer CASE Category*  
M TABIB-AZAR LERC/I L KRAINSKY 13-Physics

**NCC 3-220 Case Western Reserve University 6434**  
PROPELLANT TANK FILLING AND PROPELLANT TRANSFER WITHOUT VENTING  
*Period Obligations*  
05/23/1991-09/30/1992 FY93: \$0 TOTAL: \$20,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
E RESHOTKO LERC/N T VAN DRESAR 46-Mech Engr

**NCC 3-236 Case Western Reserve University 6435**  
MICROSTRUCTURAL CHARACTERIZATION OF METAL MATRIX COMPOSITES (MMS'S), INTERMETALLIC MATRIX COMPOS (IMS)  
*Period Obligations*  
11/22/1991-12/31/1993 FY93: \$97,414 TOTAL: \$185,925  
*Prin. Invest. NASA Tech. Officer CASE Category*  
K P LAGERLOF LERC/K B FARMER 47-Materials Engr  
....R L DAVIES

**NCC 3-243 Case Western Reserve University 6436**  
MONOLITHIC NOISE SOURCES FOR NOISE INJECTION MICROELECTROMECHANICAL SYSTEMS  
*Period Obligations*  
12/23/1991-12/31/1992 FY93: \$0 TOTAL: \$20,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
M TABIB-AZAR LERC/K B BHASIN 45-Elec Engr  
....R F LEONARD

**NCC 3-244 Case Western Reserve University 6437**  
A STUDY OF THE MECHANICAL PROPERTIES OF Mg AND Ti CO-DOPED SAPPHIRE FIBERS  
*Period Obligations*  
01/02/1992-11/30/1993 FY93: \$188,980 TOTAL: \$388,886  
*Prin. Invest. NASA Tech. Officer CASE Category*  
K D LAGERLOFF LERC/J A DICARLO 47-Materials Engr  
....S R LEVINE

# NASA'S UNIVERSITY PROGRAM

## OHIO (Continued)

**NCC 3-250 Case Western Reserve University 6438**  
 NUMERICAL MODEL FOR PROGRAMMABLE MULTIZONE FURNACE  
*Period Obligations*  
 02/07/1992-06/30/1994 FY93: \$5,610 TOTAL: \$47,097  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J J LEWANDOWSKI LERC/T K GLASGOW 47-Materials Engr

**NCC 3-253 Case Western Reserve University 6439**  
 DEVELOPMENT OF A SIC MICROSENSOR TECHNOLOGY  
*Period Obligations*  
 02/19/1992-12/31/1993 FY93: \$75,000 TOTAL: \$125,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M MEHREGANY LERC/L G MATUS 45-Elec Engr

**NCC 3-254 Case Western Reserve University 6440**  
 AN EXAMINATION OF SORET AND FICKIAN DIFFUSION AND THEIR RELATIONSHIP TO MATERIALS PROCESSING  
*Period Obligations*  
 02/21/1992-12/31/1993 FY93: \$0 TOTAL: \$110,833  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 W S WILLIAMS LERC/T K GLASGOW 47-Materials Engr

**NCC 3-258 Case Western Reserve University 6441**  
 STUDY OF ELECTRICAL PHENOMENA ASSOCIATED WITH THIN FILMS  
*Period Obligations*  
 03/06/1992-12/15/1992 FY93: \$921 TOTAL: \$39,001  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 W L GORDON LERC/I L KRAINSKY 13-Physics

**NCC 3-259 Case Western Reserve University 6442**  
 ELECTRON-BEAM ASSISTED FABRICATION OF A Si3N4/SiO2 /Si MACH-ZENDER INTERFEROMETER  
*Period Obligations*  
 03/19/1992-12/31/1992 FY93: \$0 TOTAL: \$8,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M J AZAR LERC/G BEHEIM 45-Elec Engr

**NCC 3-263 Case Western Reserve University 6443**  
 FLOW VISUALIZATION OF BLADE ROW INTERACTION  
*Period Obligations*  
 05/08/1992-05/03/1994 FY93: \$27,000 TOTAL: \$52,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J R KADAMBF LERC/J J ADAMCZYK 41-Aero Engr  
 ....R J BOYLE

**NCC 3-264 Case Western Reserve University 6444**  
 AN APPLICATION FOR THE STEREO IMAGING VELOCIMETRY PROJECT  
*Period Obligations*  
 05/08/1992-06/30/1993 FY93: \$0 TOTAL: \$9,362  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 K VADAPARTY LERC/M D BETHEA 22-Computer Science  
 ....M B MEYER

**NCC 3-266 Case Western Reserve University 6445**  
 SURFACE LIGHT SCATTERING INSTRUMENT  
*Period Obligations*  
 05/19/1992-07/21/1994 FY93: \$67,000 TOTAL: \$134,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J A MANN LERC/T K GLASGOW 47-Materials Engr  
 ....W V MEYER

**NCC 3-269 Case Western Reserve University 6446**  
 SURFACE LIGHT SCATTERING INSTRUMENTATION FOR MICRO GRAVITY EXPERIMENTS  
*Period Obligations*  
 06/02/1992-07/21/1994 FY93: \$91,000 TOTAL: \$177,001  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J A MANN LERC/T K GLASGOW 47-Materials Engr

**NCC 3-275 Case Western Reserve University 6447**  
 NUMERICAL STUDIES OF PHASE TRANSITION PHENOMENA IN MICROGRAVITY  
*Period Obligations*  
 07/02/1992-06/30/1994 FY93: \$34,532 TOTAL: \$122,718  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 V K PINES LERC/A CHAIT 47-Materials Engr

**NCC 3-278 Case Western Reserve University 6448**  
 MOTOR CHARACTERIZATION AND CONTROL FOR INERTIAL BALANCING  
*Period Obligations*  
 10/07/1992-11/05/1993 FY93: \$33,418 TOTAL: \$33,418  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 W NEWMAN LERC/C LAWRENCE 46-Mech Engr

**NCC 3-280 Case Western Reserve University 6449**  
 SEAL PERFORMANCE EVALUATION FOR ADVANCED HIGH TEMPERATURE ENGINE APPLICATIONS  
*Period Obligations*  
 10/07/1992-09/30/1993 FY93: \$45,384 TOTAL: \$45,384  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J PRAHL LERC/B M STEINETZ 46-Mech Engr  
 L KREN ....D A ROHN

**NCC 3-292 Case Western Reserve University 6450**  
 SOFTWARE DEVELOPMENT FOR THE STEREO VELOCIMETRY PROJECT  
*Period Obligations*  
 01/11/1993-12/31/1993 FY93: \$23,688 TOTAL: \$23,688  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 F I MERAT LERC/M D BETHEA 47-Materials Engr

**NCC 3-293 Case Western Reserve University 6451**  
 DIFFUSION PROCESSES IN MOLTEN SEMICONDUCTORS  
*Period Obligations*  
 01/13/1993-01/14/1994 FY93: \$122,300 TOTAL: \$122,300  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D MATTHIESEN LERC/T K GLASGOW 47-Materials Engr  
 ....C R KROLIKOWSKI

**NCC 3-294 Case Western Reserve University 6452**  
 ELECTRICAL CHARACTERIZATION OF SIC ELECTRIC DEVICE S  
*Period Obligations*  
 01/25/1993-12/31/1993 FY93: \$30,000 TOTAL: \$30,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M TABIB-AZAR LERC/P G NEUDECK 45-Elec Engr

# NASA'S UNIVERSITY PROGRAM

## OHIO (Continued)

**NCC 3-295 Case Western Reserve University 6453**  
 INTERMETALLIC MATRIX COMPOSITES  
*Period Obligations*  
 02/10/1993-02/07/1994 FY93: \$40,357 TOTAL: \$40,357  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R M AIKEN LERC/M V NATHAL 47-Materials Engr  
 J J LEWANDOSKI

**NCC 3-296 Case Western Reserve University 6454**  
 EXPOSURE OF MATERIALS IN SPACE FLIGHT  
*Period Obligations*  
 01/22/1993-04/30/1994 FY93: \$35,000 TOTAL: \$35,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J F WALLACE LERC/K K DE GROH 47-Materials Engr  
 J H PAYER ....B A BANKS

**NCC 3-298 Case Western Reserve University 6455**  
 COLLOIDAL PROCESSING STRATEGIES FOR FIBER-REINFORCED CERAMIC COMPOSITES  
*Period Obligations*  
 02/24/1993-11/30/1993 FY93: \$308,967 TOTAL: \$308,967  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D L FEKE LERC/R T BHATT 47-Materials Engr  
 ....S R LEVINE

**NCC 3-313 Case Western Reserve University 6456**  
 CAMERA CALIBRATION FOR STEREO IMAGING VELOCIMETRY  
*Period Obligations*  
 05/26/1993-12/31/1993 FY93: \$12,841 TOTAL: \$12,841  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 F L MERAT LERC/M BETHEA 47-Materials Engr

**NCC 3-322 Case Western Reserve University 6457**  
 MATERIALS EXPOSURE IN THE SPACE ENVIRONMENT  
*Period Obligations*  
 09/28/1993-09/26/1994 FY93: \$25,000 TOTAL: \$25,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 E BAER LERC/J K SUTTER 43-Chem Engr  
 D DAVIS

**NGT 00-050-375 Case Western Reserve University 6458**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 08/01/1988-07/31/1993 FY93: \$0 TOTAL: \$58,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 W YOUNGS HQ/F C OWENS 12-Chemistry  
 C T YOUNGS

**NGT 00-050-588 Case Western Reserve University 6459**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 07/26/1990-06/30/1994 FY93: \$22,000 TOTAL: \$88,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R D QUINN HQ/F C OWENS 46-Mech Engr

**NGT 00-050-632 Case Western Reserve University 6460**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 08/17/1990-07/31/1993 FY93: \$0 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 G M MICHAL HQ/F C OWENS 47-Materials Engr

**NGT 00-050-636 Case Western Reserve University 6461**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 07/24/1990-06/30/1992 FY93: \$0 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 W M RITCHEY HQ/F C OWENS 12-Chemistry

**NGT 00-050-838 Case Western Reserve University 6462**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 09/23/1991-08/25/1992 FY93: \$0 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 E B YEAGER LERC/F MONTEGANI 12-Chemistry

**NGT 00-050-862 Case Western Reserve University 6463**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 08/30/1991-06/30/1994 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J S T'EN HQ/F C OWENS 46-Mech Engr

**NGT 00-050-947 Case Western Reserve University 6464**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 08/11/1992-06/30/1994 FY93: \$22,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 K D SINGER LERC/F MONTEGANI 13-Physics

**NGT 00-050-948 Case Western Reserve University 6465**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 08/14/1992-08/23/1994 FY93: \$22,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 F E MCCAUGHAN LERC/F MONTEGANI 46-Mech Engr

**NGT 00-051-041 Case Western Reserve University 6466**  
 GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 05/14/1993-06/30/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 G KLOPMAN JPL/C HIX 12-Chemistry

**NGT 00-051-087 Case Western Reserve University 6467**  
 GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 06/15/1993-06/30/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J S TIEN HQ/D A HOLLAND 46-Mech Engr

**NGT 00-051-143 Case Western Reserve University 6468**  
 GRADUATE STUDENTS RESEARCHERS PROGRAM  
*Period Obligations*  
 09/01/1993-08/31/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 F E MCCLAUGHAN HQ/G LESANE 46-Mech Engr



**NASA'S UNIVERSITY PROGRAM**  
**OHIO (Continued)**

**NGT 00-051-168 Case Western Reserve University 6469**  
 GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 08/06/1993-06/30/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 V KAMOTANI LERC/F MONTEGANI 46-Mech Engr

**NGT 00-051-194 Case Western Reserve University 6470**  
 GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 09/20/1993-08/22/1996 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R D QUINN MSFC/B SWINFORD 46-Mech Engr

**NGT 00-070-237 Case Western Reserve University 6471**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
 MINORITY FOCUS PROGRAM  
*Period Obligations*  
 12/17/1991-12/31/1993 FY93: \$22,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 T G ECK LARC/E PRIOR 13-Physics

**NGT 00-070-281 Case Western Reserve University 6472**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
 MINORITY FOCUS PROGRAM  
*Period Obligations*  
 07/24/1993-06/30/1994 FY93: \$22,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D SCHERSON LERC/F J MONTEGANI 12-Chemistry

**NGT 00-070-351 Case Western Reserve University 6473**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
 MINORITY FOCUS PROGRAM  
*Period Obligations*  
 08/12/1993-08/31/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S PHILLIPS HQ/D K RUSSELL 45-Elec Engr

**NGT 00-090-177 Case Western Reserve University 6474**  
 UNDERGRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 08/27/1993-08/14/1994 FY93: \$12,000 TOTAL: \$12,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M BOULDING HQ/D RUSSELL 99-Multi-Discip

**NGT36-27011 Case Western Reserve University 6475**  
 CONTINUED RESEARCH IN- CLUDED IS LERC PR 435646 FOR  
 \$14,550  
*Period Obligations*  
 12/16/1969-03/31/1992 FY93: \$0 TOTAL: \$7,322,127  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J M PRAHL HQ/A S MCGEE 49-Engr, NEC  
 ....E T SCHWARTZ

**NAG 3-1463 Central State University - Ohio 6476**  
 A STUDY OF EVAPORATION FROM A BINARY MENISCUS IN M  
 ICROGRAVITY  
*Period Obligations*  
 03/04/1993-02/28/1994 FY93: \$148,581 TOTAL: \$148,581  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M M GIRGIS LERC/J A SALZMAN 19-Phys Sci, NEC  
 ....R L THOMPSON

**NAG 3-1517 Central State University - Ohio 6477**  
 RESEARCH LABORATORY FOR ENGINEERING AND TECHNOLOGY (   
 RELENT)  
*Period Obligations*  
 08/19/1993-08/11/1994 FY93: \$104,155 TOTAL: \$104,155  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 C B OKHIO LERC/D E LACY 42-Astro Engr

**NAG 3-658 Cleveland State University 6478**  
 THEORY OF INDIUM PHOSPHIDE SOLAR CELLS  
*Period Obligations*  
 11/06/1985-10/31/1993 FY93: \$178,294 TOTAL: \$1,613,864  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 C GORADIA LERC/I WEINBERG 45-Elec Engr  
 M GORADIA ....D J FLOOD

**NAG 3-749 Cleveland State University 6479**  
 A HIGH TEMP. TESTING SYS. FOR CERAMIC COMPOSITES  
*Period Obligations*  
 10/29/1986-10/31/1993 FY93: \$119,150 TOTAL: \$621,124  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J H HEMANN LERC/F I HURWITZ 47-Materials Engr

**NAG 3-879 Cleveland State University 6480**  
 ADAPT OF CERAMICS ANALY AND RELIAB EVAL OF STRUCT (C  
 ARES) AND THE COMPOSITE VERSION C/CARES TO ANSYS  
*Period Obligations*  
 02/24/1988-11/30/1993 FY93: \$0 TOTAL: \$102,900  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A PINTZ LERC/J M MANDERSCHIED 46-Mech Engr

**NAG 3-955 Cleveland State University 6481**  
 DEVELOPMENT OF MULTI-DIMENSIONAL STERLING ENGINE D ESIGN  
 CODE  
*Period Obligations*  
 11/15/1988-01/31/1994 FY93: \$25,000 TOTAL: \$222,631  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M B IBRAHIM LERC/R C TEW 49-Engr, NEC  
 ....J E DUDENHOEFER

**NAG 3-971 Cleveland State University 6482**  
 OSCILLATING FLOW AND HEAT TRASFER IN A CHANNEL WITH  
 SUDDEN CROSS SECTION CHANGE  
*Period Obligations*  
 12/29/1988-06/30/1993 FY93: \$0 TOTAL: \$152,983  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M B IBRAHIM LERC/R C TEW 49-Engr, NEC  
 ....J R DUDENHOEFER

**NASA'S UNIVERSITY PROGRAM**  
**OHIO (Continued)**

**NAG 3-1010** **Cleveland State University** **6483**  
 FLOW VISUALIZATION STUDIES OF MIXING PROCESS  
*Period* *Obligations*  
 02/13/1989-10/01/1993 FY93: \$0 TOTAL: \$325,898  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 B GHORASHI LERC/K S CHUN 41-Aero Engr

**NAG 3-1145** **Cleveland State University** **6484**  
 OBJECT ORIENTED REALTIME SYSTEMS ANALYSIS AND SPECIFICATION  
*Period* *Obligations*  
 03/01/1990-10/31/1991 FY93: \$2,504 TOTAL: \$57,196  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 J D SCHOEFFLER LERC/K SCHUBERT 22-Computer Science  
 ....G DAVIDIAN

**NAG 3-1151** **Cleveland State University** **6485**  
 ANALYZING A SELF-DIAGNOSTIC SYSTEM FOR PIEZOELECTRIC SENSORS  
*Period* *Obligations*  
 03/06/1990-11/15/1993 FY93: \$0 TOTAL: \$139,913  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 P M FLANAGAN LERC/G C MADZSAR 49-Engr, NEC  
 W J ATHERTON

**NAG 3-1191** **Cleveland State University** **6486**  
 MATHEMATICAL MODELING OF A SPLIT TORQUE HELICOPTER TRANSMISSION  
*Period* *Obligations*  
 07/05/1990-09/24/1993 FY93: \$20,302 TOTAL: \$116,802  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 M RASHIDI LERC/T L KRANTZ 46-Mech Engr

**NAG 3-1216** **Cleveland State University** **6487**  
 A STUDY OF TIME DEPENDENT RESPONSE OF CERAMIC MATERIALS  
*Period* *Obligations*  
 12/05/1990-11/25/1993 FY93: \$82,070 TOTAL: \$216,080  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 J H HEMANN LERC/J P GYKENYESI 42-Astro Engr  
 ....J M MANDERSCHIED

**NAG 3-1313** **Cleveland State University** **6488**  
 CHARACTERIZATION OF DEFECT SOLIDS  
*Period* *Obligations*  
 12/17/1991-12/31/1993 FY93: \$40,000 TOTAL: \$90,250  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 H SCHLOSSER LERC/J FERRANTE 47-Materials Engr

**NAG 3-1379** **Cleveland State University** **6489**  
 A RATE-ADJUSTING CONGESTION CONTROL SCHEME FOR SATELLITE PACKET SWITCHING NETWORK  
*Period* *Obligations*  
 11/04/1992-07/15/1994 FY93: \$83,837 TOTAL: \$83,837  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 P CHU LERC/H KIM 45-Elec Engr

**NAG 3-1441** **Cleveland State University** **6490**  
 DESIGN OF OBJECT-ORIENTED DISTRIBUTED SIMULATION CLASSES  
*Period* *Obligations*  
 01/13/1993-10/14/1994 FY93: \$73,461 TOTAL: \$73,461  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 J SCHOEFFLER LERC/G YOLKN 22-Computer Science

**NAG 3-1482** **Cleveland State University** **6491**  
 RELIABILITY ANALYSIS OF SHUTTLE BASED MICROGRAVITY FLIGHT EXPERIMENTS  
*Period* *Obligations*  
 04/05/1993-09/30/1993 FY93: \$26,640 TOTAL: \$26,640  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 Y A LIU LERC/D P MORILAK 29-Math/Computer, NEC

**NAG 3-1511** **Cleveland State University** **6492**  
 MINORITY ENGINEERING PROGRAMS PIPELINE-A PROPOSAL TO INCREASE MIN STUD ENROLL AND RETENTION IN ENG  
*Period* *Obligations*  
 07/13/1993-06/30/1994 FY93: \$27,126 TOTAL: \$27,126  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 P C CHARITY LERC/D E LACY 99-Multi-Discip  
 ....J A CHARLESTON

**NAG 3-1531** **Cleveland State University** **6493**  
 NEW WHITE THERMAL CONTROL COATINGS FOR ADVANCED SPACE STATION FREEDOM RADIATORS  
*Period* *Obligations*  
 09/21/1993-09/21/1994 FY93: \$4,963 TOTAL: \$4,963  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 P D HAMBOURGER LERC/S K RUTLEDGE 13-Physics

**NCC 3-19** **Cleveland State University** **6494**  
 TERRESTRIAL SPACE ENERGETICS AND POWER SYSTEM  
*Period* *Obligations*  
 08/12/1982-12/31/1993 FY93: \$68,078 TOTAL: \$1,629,098  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 P D HAMBOURGER LERC/S K RUTLEDGE 43-Chem Engr  
 D B SHAH ....B A BANKS

**NCC 3-23** **Cleveland State University** **6495**  
 PHOSPHORIC ACID FUEL CELL TECHNOLOGY DEVELOPMENT  
*Period* *Obligations*  
 11/18/1982-12/31/1993 FY93: \$138,348 TOTAL: \$1,554,162  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 G COULMAN LERC/P R PROKOPIUS 43-Chem Engr  
 B ANTOINE ....J M SMITH  
 K ALKASAB

**NCC 3-41** **Cleveland State University** **6496**  
 EXPERIMENTAL CAPABILITY FOR MICROGRAVITY MATERIAL SCIENCE  
*Period* *Obligations*  
 04/16/1984-06/30/1993 FY93: \$0 TOTAL: \$925,896  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 G L KRAMERICH LERC/T K GLASGOW 29-Math/Computer, NEC  
 ....B N ROSENTHAL

**NASA'S UNIVERSITY PROGRAM**  
**OHIO (Continued)**

**NCC 3-63 Cleveland State University 6497**  
 DEVELOPMENT OF CERAMIC COMPOSITES WITH ENHANCED RELIABILITY  
*Period* *Obligations*  
 04/18/1986-12/03/1993 FY93: \$190,413 TOTAL: \$1,060,334  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 A H ANDRIST LERC/F I HURWITZ 43-Chem Engr

**NCC 3-122 Cleveland State University 6504**  
 DEVELOPMENT OF ANALYTICAL METHODS FOR MATERIALS ANALYSIS  
*Period* *Obligations*  
 12/06/1988-11/30/1993 FY93: \$160,365 TOTAL: \$626,531  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 R G MEGARGLE LERC/R L DAVIES 12-Chemistry  
 R L TOWNS ....K S CRANDALL

**NCC 3-77 Cleveland State University 6498**  
 ADVANCED MICROSHEET/COMPOSITE SOLAR REFLECTOR FOR LEO APPLICATIONS  
*Period* *Obligations*  
 12/23/1986-09/30/1993 FY93: \$0 TOTAL: \$1,008,800  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 A PINTZ LERC/J M SAVINO 47-Materials Engr  
 ....T MROZ

**NCC 3-138 Cleveland State University 6505**  
 HIGH TEMPERATURE MECHANICAL BEHAVIOR OF CERAMIC MATERIALS COMPOSITES  
*Period* *Obligations*  
 04/18/1989-10/31/1993 FY93: \$197,143 TOTAL: \$582,651  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 J H HEMANN LERC/S R LEVINE 47-Materials Engr  
 ....J A SALEM

**NCC 3-81 Cleveland State University 6499**  
 INV. OF THEORIES OF FAILURE FOR CERAMIC COMPOSITE MATERIALS AND THEN IMPLEMENTATION INTO ELEMENT CODE  
*Period* *Obligations*  
 02/26/1987-11/24/1993 FY93: \$109,515 TOTAL: \$1,321,146  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 J H HEMANN LERC/J P GYKENYESI 47-Materials Engr  
 ....B GROSS

**NCC 3-142 Cleveland State University 6506**  
 INTERACTION BETWEEN CONVECTION AND HEAT TRANSFER IN CRYSTAL GROWTH  
*Period* *Obligations*  
 06/29/1989-12/03/1993 FY93: \$214,277 TOTAL: \$661,422  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 S N TEWARI LERC/T K GLASGOW 47-Materials Engr  
 ....B N ROSENTHAL

**NCC 3-100 Cleveland State University 6500**  
 DEVELOPMENT OF IMAGE TURBULENCE AND COMBUSTION  
*Period* *Obligations*  
 12/03/1987-08/31/1992 FY93: \$0 TOTAL: \$380,329  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 B GHORASHI LERC/C J MAREK 46-Mech Engr

**NCC 3-143 Cleveland State University 6507**  
 INNOVATIVE SOLAR CONCENTRATOR CONCEPTS RESEARCH  
*Period* *Obligations*  
 07/06/1989-09/30/1993 FY93: \$0 TOTAL: \$599,310  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 P V HERMANN LERC/T MROZ 42-Astro Engr

**NCC 3-111 Cleveland State University 6501**  
 MICROSTRUCTURAL AND MICROCHEMICAL CHARACTERIZATION OF ELEVATED TEMP  
*Period* *Obligations*  
 06/28/1988-04/15/1994 FY93: \$135,732 TOTAL: \$669,538  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 S N TEWARI LERC/D R HULL 41-Aero Engr

**NCC 3-151 Cleveland State University 6508**  
 ALLOY DEVELOPMENT AND MECHANICAL PROPERTIES FOR AEROSPACE APPLICATIONS  
*Period* *Obligations*  
 10/17/1989-04/30/1992 FY93: \$1 TOTAL: \$107,364  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 S N TEWARI LERC/H R GRAY 47-Materials Engr  
 S V RAJ ....M V NATHAL

**NCC 3-119 Cleveland State University 6502**  
 CREEP OF REFRACTORY METAL FIBERS AND MODELLING OF METAL MATRIX COMPOSITES  
*Period* *Obligations*  
 11/01/1988-03/14/1994 FY93: \$95,000 TOTAL: \$481,782  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 S N TEWARI LERC/H R GRAY 47-Materials Engr  
 H M YUN ....T L GROBSTEN

**NCC 3-162 Cleveland State University 6509**  
 SYNTHESIS AND CHARACTERIZATION OF ORGANOCOPPERINDIUM AND ORGANOCOPPERGALLIUM COMPOUNDS  
*Period* *Obligations*  
 01/23/1990-03/31/1994 FY93: \$9,500 TOTAL: \$63,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 S A DURAJ LERC/A F HEPP 12-Chemistry

**NCC 3-121 Cleveland State University 6503**  
 RESEARCH ON ELECTRICAL CHARACTERIZATION OF SILICON CARBIDE  
*Period* *Obligations*  
 11/30/1988-04/30/1993 FY93: \$0 TOTAL: \$70,188  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 M G GORADIA LERC/L G MATUS 45-Elec Engr

**NCC 3-163 Cleveland State University 6510**  
 DEVELOPMENT OF ENGINEERING SYSTEMS FOR SPACE STATION FREEDOM  
*Period* *Obligations*  
 01/25/1990-09/30/1994 FY93: \$57,083 TOTAL: \$341,136  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 G L KRAMERICH LERC/J A KOBAC 45-Elec Engr

**NASA'S UNIVERSITY PROGRAM**  
**OHIO (Continued)**

**NCC 3-190 Cleveland State University 6511**  
 DEVELOPMENT OF ADVANCED AEROSPACE MATERIALS /5100  
*Period Obligations*  
 01/02/1991-12/31/1993 FY93: \$71,188 TOTAL: \$208,376  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S N TEWARI LERC/C E LOWELL 47-Materials Engr

**NCC 3-242 Cleveland State University 6518**  
 SHAPE SELECTION CRITERION FOR CELLULAR ARRAY DURIN G  
 CONSTRAINED GROWTH OF BINARY ALLOYS  
*Period Obligations*  
 12/04/1991-11/30/1993 FY93: \$0 TOTAL: \$100,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S N TEWARI LERC/T K GLASGOW 47-Materials Engr

**NCC 3-191 Cleveland State University 6512**  
 DEVELOPMENT OF ADVANCED MULTIZONE FACILITIES FOR M  
 ICROGRAVITY PROCESSING  
*Period Obligations*  
 12/12/1990-12/31/1993 FY93: \$167,563 TOTAL: \$516,199  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S N TEWARI LERC/B N ROSENTHAL 13-Physics  
 ....T K GLASGOW

**NCC 3-257 Cleveland State University 6519**  
 METHODOLOGY FOR THE DESIGN AND IMPLEMENTATION OF REA  
 S-TIME EXPERT SYSTEMS  
*Period Obligations*  
 03/06/1992-04/12/1994 FY93: \$45,000 TOTAL: \$85,903  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 F E VILLASECA LERC/J C DELAAT 45-Elec Engr

**NCC 3-201 Cleveland State University 6513**  
 MODEM AND CODEC BOARD FOR LOW BIT RATE VSAT AT KABAN  
 D  
*Period Obligations*  
 02/14/1991-01/31/1994 FY93: \$17,963 TOTAL: \$83,079  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D ZEGHLACHE LERC/M J CONROY 45-Elec Engr

**NCC 3-270 Cleveland State University 6520**  
 POTENTIAL APPLICATIONS OF MEMBRANES DEVELOPED BY N  
 ASA  
*Period Obligations*  
 06/18/1992-11/30/1992 FY93: \$1 TOTAL: \$4,999  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D B SHAH LERC/K W STREET 12-Chemistry  
 ....W H PHILIPP

**NCC 3-204 Cleveland State University 6514**  
 A FEAS STUDY OF A BACKSCATT ENSMB MEAS PARTICLE SI ZING  
 INST FOR DET WATER DROPLET SIZE DIST W/ CLOU  
*Period Obligations*  
 02/14/1991-02/04/1994 FY93: \$31,720 TOTAL: \$91,697  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J A LOCK LERC/R C ANDERSON 13-Physics  
 ....D J LESCO

**NCC 3-274 Cleveland State University 6521**  
 SURFACE LIGHT SCATTERING OF LIQUID-FLUID INTERFACE S:  
 INSTRUMENT DEVELOPMENT  
*Period Obligations*  
 06/30/1992-09/15/1992 FY93: \$0 TOTAL: \$13,347  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M AZZAM LERC/T K GLASGOW 47-Materials Engr

**NCC 3-205 Cleveland State University 6515**  
 DURABILITY AND LIFE OF CERAMIC MATRIX COMPOSITES IN  
 COMBUSTION ENVIRONMENT  
*Period Obligations*  
 06/11/1991-12/31/1993 FY93: \$87,881 TOTAL: \$227,581  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S N TEWARI LERC/L A GREENBAUER-SENG 47-Materials Engr  
 ....N S JACOBSON

**NCC 3-285 Cleveland State University 6522**  
 PLASMA-SPRAYED REFRACTORY OXIDE COATINGS ON SILICO  
 N-BASE CERAMICS  
*Period Obligations*  
 03/03/1993-02/28/1994 FY93: \$90,900 TOTAL: \$90,900  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S N TEWARI LERC/L A GREENBAUER-SENG 47-Materials Engr

**NCC 3-228 Cleveland State University 6516**  
 SCANNING AND TRANSMISSION ELECTRON MICROSCOPY OF HIG  
 H TEMPERATURE MATERIALS  
*Period Obligations*  
 08/14/1991-03/25/1994 FY93: \$93,800 TOTAL: \$231,418  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S N TEWARI LERC/D R HULL 47-Materials Engr

**NCC 3-287 Cleveland State University 6523**  
 DIRECTIONAL SOLIDIFICATION OF INTERMETALLIC MATRIX  
 COMPOSITES  
*Period Obligations*  
 02/12/1993-02/02/1994 FY93: \$60,000 TOTAL: \$60,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S N TEWARI LERC/R R BOWMAN 47-Materials Engr

**NCC 3-232 Cleveland State University 6517**  
 SYSTEM ANALYSIS IN SUPPORT OF NASA'S SITE SPACE CO  
 MMUNICATION SYSTEM SIMULATION PROJECT  
*Period Obligations*  
 09/12/1991-03/30/1993 FY93: \$0 TOTAL: \$22,619  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 F XIONG LERC/J H MOHAMED 45-Elec Engr  
 ....R J KERCZEWSKI

**NCC 3-299 Cleveland State University 6524**  
 MACROSEGREGATION IN DIRECIONALY SOLIDIFIED PB-SN  
 ALLOYS  
*Period Obligations*  
 05/27/1993-05/23/1994 FY93: \$66,350 TOTAL: \$66,350  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S TEWARI LERC/A CHAIT 47-Materials Engr

# NASA'S UNIVERSITY PROGRAM

## OHIO (Continued)

**NCC 3-301 Cleveland State University 6525**  
 IN-PLANT TESTING OF MEMBRANES TO TREAT ELECTROPLATING WASTEWATER  
*Period Obligations*  
 03/26/1993-10/08/1993 FY93: \$38,230 TOTAL: \$38,230  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D B SHAH LERC/K W STREET 43-Chem Engr  
 ....A F RATAJCZAK

**NCC 3-303 Cleveland State University 6526**  
 AN INVESTIGATION OF DAMAGE IN SIC/TITANIUM COMPOSITES USING THE SCANNING ACOUSTIC MICROSCOPE  
*Period Obligations*  
 05/05/1993-11/30/1993 FY93: \$23,535 TOTAL: \$23,535  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J HEMANN LERC/G BAAKLINI 47-Materials Engr

**NCC 3-304 Cleveland State University 6527**  
 ULTRASONIC SCANNER CONTROL AND DATA ACQUISITION  
*Period Obligations*  
 05/05/1993-11/30/1993 FY93: \$19,593 TOTAL: \$19,593  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J HEMANN LERC/N NEMETH 47-Materials Engr

**NCC 3-305 Cleveland State University 6528**  
 AN INVESTIGATION OF RELIABILITY MODELS FOR CERAMIC MATRIX COMPOSITES AND THEIR IMPLEMENTATION INTO FINITE ELEMENT CODES  
*Period Obligations*  
 06/29/1993-01/22/1994 FY93: \$47,791 TOTAL: \$47,791  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S DUFFY LERC/N NEMETH 47-Materials Engr

**NCC 3-306 Cleveland State University 6529**  
 AN INVESTIGATION OF THEORIES OF FAILURE FOR CERAMIC MATRIX COMPOSITE MATERIALS  
*Period Obligations*  
 05/05/1993-06/14/1994 FY93: \$24,344 TOTAL: \$24,344  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J HEMANN LERC/N NEMETH 47-Materials Engr

**NCC 3-310 Cleveland State University 6530**  
 DESIGN PROTOCOLS AND ANALYTICAL STRATEGIES THAT INCORPORATE STRUCTURAL RELIABILITY MODELS  
*Period Obligations*  
 06/15/1993-08/31/1994 FY93: \$62,291 TOTAL: \$62,291  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S DUFFY LERC/N NEMETH 47-Materials Engr

**NCC 3-316 Cleveland State University 6531**  
 NON-DESTRUCTIVE EVALUATION OF ADVANCED MATERIALS FOR HEAT ENGINE AND SPACE STRUCTURE APPLICATIONS  
*Period Obligations*  
 08/20/1993-03/25/1994 FY93: \$20,500 TOTAL: \$20,500  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J HEMANN LERC/A VARY 47-Materials Engr

**NGT 00-070-148 Cleveland State University 6532**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED MINORITY FOCUS PROGRAM  
*Period Obligations*  
 08/04/1989-12/31/1992 FY93: \$0 TOTAL: \$62,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 B GHORASHI HQ/F C OWENS 49-Engr, NEC

**NAG 3-1354 College of Wooster 6533**  
 LOADING AND TESTING A LIGHT SCATTERING CELL WITH A BINARY FLUID MIXTURE NEAR ITS CRITICAL COMPOSITION  
*Period Obligations*  
 06/01/1992-08/31/1992 FY93: \$0 TOTAL: \$15,100  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D T JACOBS LERC/R A WILKINSON 13-Physics

**NAG 3-1404 College of Wooster 6534**  
 THE TURBIDITY OF A BINARY FLUID MIXTURE VERY CLOSE TO THE CRITICAL POINT  
*Period Obligations*  
 12/23/1992-12/31/1993 FY93: \$120,000 TOTAL: \$120,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D T JACOBS LERC/R A WILKINSON 13-Physics

**NAG 3-313 Cuyahoga Community College 6535**  
 PRE ENGINEERING PROGRAM  
*Period Obligations*  
 07/30/1982-11/30/1993 FY93: \$27,000 TOTAL: \$253,630  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 L NIRO LERC/R F LAWRENCE 49-Engr, NEC  
 E T RIVERA

**NAG 3-1509 Cuyahoga Community College 6536**  
 NEW APPROACH TO SELF ACHIEVEMENT-THE NASA PROJECT  
*Period Obligations*  
 06/11/1993-08/07/1993 FY93: \$30,519 TOTAL: \$30,519  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S K BECKER LERC/D E LACY 99-Multi-Discip  
 ....J A CHARLESTON

**NCA 3-12 Cuyahoga Community College 6537**  
 MENTORING SERVICES - SPACE ACT AGREEMENT  
*Period Obligations*  
 01/29/1992-12/31/1992 FY93: \$270,000 TOTAL: \$370,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R TALERICO LERC/C W SLAUTER 45-Elec Engr

**NCC 3-185 Cuyahoga Community College 6538**  
 CCC/NASA LERC MENTOR INTERNSHIP/PARTNERSHIP  
*Period Obligations*  
 09/18/1990-06/07/1994 FY93: \$25,000 TOTAL: \$68,780  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 B L CANEPARI LERC/F H YARRIS 41-Aero Engr

**NCC 3-323 Cuyahoga Community College 6539**  
 CENTER FOR URBAN EXCELLENCE-SCIENCE, ENGINEERING MATHEMATICS AND AEROSPACE ACADEMY  
*Period Obligations*  
 09/21/1993-09/20/1994 FY93: \$250,000 TOTAL: \$250,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S CHAND LERC/R L BONDURANT 99-Multi-Discip

**NASA'S UNIVERSITY PROGRAM**  
**OHIO (Continued)**

**NAGW 1765**                      **Denison University**                      **6540**  
 LABORATORY SPECTROSCOPIC MEASUREMENTS OF THE  
 ABSORPTION  
*Period*                                      *Obligations*  
 06/14/1989-09/30/1993                      FY93: \$50,795                      TOTAL: \$261,575  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 M E MICKELSON                      HQ/J T BERGSTRALH                      11-Astronomy

**NCC 3-189**                      **Kent State University**                      **6547**  
 CONTACT SENSOR ATTACHMENT TO TITANIUM METAL COMPOS  
 ITES (TMCS)  
*Period*                                      *Obligations*  
 11/27/1990-12/31/1993                      FY93: \$70,000                      TOTAL: \$236,000  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 C VARGAS-ABURTO                      LERC/N D PILTCH                      47-Materials Engr  
       ...../W D WILLIAMS

**NCC 3-174**                      **Heidelberg College**                      **6541**  
 CALCULATION OF REVISED NASA THERMAL COEFFICIENTS F OR  
 SELECTED SPECIES AT HIGH TEMPERATURE  
*Period*                                      *Obligations*  
 05/17/1990-07/19/1994                      FY93: \$19,800                      TOTAL: \$59,800  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 M A RENO                      LERC/B J MCBRIDE                      19-Phys Sci, NEC

**NCC 3-222**                      **Kent State University**                      **6548**  
 PHYSICS OF HIGH TEMPERATURE SUPERCONDUCTING MATERI ALS  
 AND THEIR USE IN SPACE APPLICATIONS  
*Period*                                      *Obligations*  
 12/16/1991-12/01/1993                      FY93: \$131,768                      TOTAL: \$241,768  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 D L JOHNSON                      LERC/R F LEONARD                      13-Physics

**NAG 3-571**                      **John Carroll University**                      **6542**  
 OPTICAL SENSORS FOR USE IN PROPULSION CONTROL SYSTEMS  
*Period*                                      *Obligations*  
 08/27/1984-12/09/1993                      FY93: \$166,000                      TOTAL: \$846,850  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 K FRITSCH                      LERC/G BEHEIM                      45-Elec Engr

**NCC 3-235**                      **Kent State University**                      **6549**  
 ROLE OF TELECOMMUNICATIONS TECHNOLOGIES AND SERVICES  
 IN A RESEARCH ENVIRONMENT  
*Period*                                      *Obligations*  
 11/15/1991-12/31/1993                      FY93: \$25,000                      TOTAL: \$50,000  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 C M BAKES                      LERC/F N GOLDBERG                      22-Computer Science  
       ...../R R SCHULTE

**NAG 3-984**                      **John Carroll University**                      **6543**  
 DEVELOPMENT WORK ON FIBEROPTIC SENSORS  
*Period*                                      *Obligations*  
 01/27/1989-12/31/1993                      FY93: \$92,995                      TOTAL: \$371,995  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 E J CAROME                      LERC/G ADAMOVSKY                      13-Physics  
 J EHSTACE                      ....//G SENG

**NCC 3-318**                      **Kent State University**                      **6550**  
 MOLECULAR-ENGINEERED MATERIALS FOR AEROSPACE APPLI  
 CATIONS  
*Period*                                      *Obligations*  
 07/29/1993-07/31/1994                      FY93: \$100,000                      TOTAL: \$100,000  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 C V ABURTO                      LERC/A F HEPP                      19-Phys Sci, NEC  
 D G HEHEMANN

**NAG 3-946**                      **Kent State University**                      **6544**  
 DEVELOPMENT OF SECONDARY ION MASS  
*Period*                                      *Obligations*  
 10/21/1988-03/02/1994                      FY93: \$8,000                      TOTAL: \$294,667  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 C V ABURTO                      LERC/S G BAILEY                      13-Physics

**NGT 00-051-161**                      **Kent State University**                      **6551**  
 GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period*                                      *Obligations*  
 06/22/1993-06/30/1994                      FY93: \$22,000                      TOTAL: \$22,000  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 J POTTER                      HQ/P HUNTER                      22-Computer Science

**NAG 3-1030**                      **Kent State University**                      **6545**  
 PHYSICS OF HIGH TEMPERATURE SUPERCONDUCTING MATERI ALS  
 AND THEIR USE IN SPACE APPLICATIONS  
*Period*                                      *Obligations*  
 04/10/1989-11/30/1992                      FY93: \$0                      TOTAL: \$454,264  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 D L JOHNSON                      LERC/P R ARON                      13-Physics  
 D W ALLENDER  
 S KUMAR

**NAGW 2143**                      **Kenyon College**                      **6552**  
 ROLE OF ION CHANNELS IN PLANT GRAVITROPISM AS A MO DEL  
 SYSTEM  
*Period*                                      *Obligations*  
 06/06/1990-01/31/1994                      FY93: \$50,000                      TOTAL: \$155,000  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 K L EDWARDS                      HQ/T W HALSTEAD                      51-Biological Sci

**NCC 2-803**                      **Kent State University**                      **6546**  
 EXPERIMENTAL TESTING OF TWISTED NEMATIC AND  
 SUPERTWISTED NEMATIC LIQUID CRYSTAL DISPLAYS  
*Period*                                      *Obligations*  
 05/21/1993-04/30/1994                      FY93: \$77,918                      TOTAL: \$77,918  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 J KELLY                      ARC/J LARIMER                      13-Physics  
 O LAVRETOVICH

**NCC 3-184**                      **Lorain County Community College**                      **6553**  
 LORAIN COUNTY COMMUNITY COLLEGE/LERC MENTOR  
 INTERNSHIP/PARTNERSHIP  
*Period*                                      *Obligations*  
 09/20/1990-09/15/1994                      FY93: \$20,000                      TOTAL: \$84,080  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 J COLE                      LERC/F H YARRIS                      41-Aero Engr

# NASA'S UNIVERSITY PROGRAM

## OHIO (Continued)

**NCC 3-226 Lorain County Community College 6554**  
 AUGMENTATION OF MICROGRAVITY MATERIAL SCIENCE LABORATORY CAPABILITY  
*Period* *Obligations*  
 07/10/1991-06/30/1994 FY93: \$0 TOTAL: \$41,040  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 J TOMSIC LERC/T K GLASGOW 46-Mech Engr

**NAG 9-446 Miami University 6555**  
 RESEARCH ON SPACE MOTION SICKNESS: DEVELOPMENT AND INFORMATION OF PREFLIGHT ADAPTATION TRAINING  
*Period* *Obligations*  
 08/01/1990-08/01/1993 FY93: \$0 TOTAL: \$158,086  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 D E PARKER JSC/F KUTYNA 56-Medical Sciences

**NGT 00-050-427 Miami University 6556**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period* *Obligations*  
 09/07/1989-08/31/1992 FY93: \$0 TOTAL: \$62,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 D E PARKER HQ/F C OWENS 61-Biol Aspects

**NAG 1-1058 Ohio State University 6557**  
 GENERAL SIMULATION OF HELICOPTERS AND INTERFACE TO ANTENNA PATTERN PREDICTION CODES  
*Period* *Obligations*  
 09/07/1989-11/30/1993 FY93: \$142,364 TOTAL: \$707,492  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 E H NEWMAN LARC/G C BARBER 45-Elec Engr  
 R G ROJAS ....M C GILREATH  
 W D BURNSIDE

**NAG 1-1164 Ohio State University 6558**  
 ROBUST CONTROL OF LINEAR UNCERTAIN SYSTEMS WITH APPLICATIONS TO AIRCRAFT CONTROL. FDP  
*Period* *Obligations*  
 07/13/1990-10/31/1993 FY93: \$44,004 TOTAL: \$159,602  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 R K YEDAVALLI LARC/C M BELCASTRO 41-Aero Engr  
 ....M R WASZAK

**NAG 1-1357 Ohio State University 6559**  
 THERMAL CYCLING CREEP AND LIFE PREDICTION OF HIGH PERFORMANCE ALUMINUM-BASED METAL MATRIX FDP  
*Period* *Obligations*  
 11/20/1991-11/30/1993 FY93: \$49,062 TOTAL: \$110,858  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 G S DAHN LARC/W D BREWER 47-Materials Engr  
 ....D M ROYSTER

**NAG 2-810 Ohio State University 6560**  
 DEVELOPMENT OF HUMAN-CENTERED AIRCRAFT AUTOMATION CONCEPTS  
*Period* *Obligations*  
 11/19/1992-09/30/1993 FY93: \$25,000 TOTAL: \$25,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 C E BILLINGS ARC/C T SNYDER 69-Psych, NEC  
 ....J A ALBERS

**NAG 2-870 Ohio State University 6561**  
 A PARALLEL IMPLEMENTATION OF THE FINITE ELEMENT METHOD FOR ELECTROMAGNETICS  
*Period* *Obligations*  
 08/16/1993-12/31/1994 FY93: \$149,997 TOTAL: \$149,997  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 R LEE ARC/A C WOO 45-Elec Engr  
 F OZGUNER ....M J SCHUH  
 J F LEE

**NAG 3-755 Ohio State University 6562**  
 STUDY OF POWDER AGGLOMERATION IN A MICROGRAVITY EXPERIMENT  
*Period* *Obligations*  
 11/14/1986-09/30/1991 FY93: \$643 TOTAL: \$207,434  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 J D CAWLEY LERC/D S FOX 49-Engr, NEC

**NAG 3-764 Ohio State University 6563**  
 EXPERIMENTAL STUDY OF ORGANIZED STRUCTURES IN A SUPERSONIC SHEAR LAYER  
*Period* *Obligations*  
 11/26/1986-08/31/1994 FY93: \$80,000 TOTAL: \$415,506  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 M SAMIMY LERC/K Q ZAMAN 46-Mech Engr  
 ....C J MAREK

**NAG 3-843 Ohio State University 6564**  
 EFFECTS OF MAGNETIC NOZZLE CONFIGURATIONS  
*Period* *Obligations*  
 12/02/1987-12/09/1993 FY93: \$34,000 TOTAL: \$342,999  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 T M YORK LERC/M A MANTENIEKS 13-Physics  
 D S EMMER

**NAG 3-880 Ohio State University 6565**  
 PLATE VIBRATIONS  
*Period* *Obligations*  
 02/19/1988-03/31/1992 FY93: \$0 TOTAL: \$118,600  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 A W LEISSA LERC/C LAWRENCE 46-Mech Engr

**NAG 3-913 Ohio State University 6566**  
 ELECTROMAGNETIC PROPERTIES OF THE COATED SURFACES  
 ELECTROMAGNETIC PROPERTIES OF ICE COATED SURFACES  
*Period* *Obligations*  
 06/15/1988-04/30/1993 FY93: \$38 TOTAL: \$849,271  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 L PETERS LERC/R J SHAW 45-Elec Engr  
 D BURNDIDE ....P L BURSTADT

**NAG 3-930 Ohio State University 6567**  
 EVALUATION OF COATINGS AND LUBRICANTS FOR INCREASED SERVICE LIVES OF DIE CASTING DIES  
*Period* *Obligations*  
 09/26/1988-08/31/1993 FY93: \$0 TOTAL: \$199,700  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 T ALTAN LERC/H J SCHWARTZ 47-Materials Engr  
 O CHEN ....J KRYSIAK  
 R SHIVPURI

# NASA'S UNIVERSITY PROGRAM

## OHIO (Continued)

**NAG 3-986** **Ohio State University** **6568**  
 AN EXP RES PROG ON THE SUPERSONIC THROUGHFLOW TURB OFAN  
*Period* *Obligations*  
 02/02/1989-11/30/1993 FY93: \$0 TOTAL: \$397,004  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 J D LEE LERC/R E COLTRIN 41-Aero Engr  
 M B BRAGG

**NAG 3-1359** **Ohio State University** **6575**  
 ANALYSIS OF EM SCATTERING BY OPEN CAVITIES FOR USE IN RADAR TARGET IDENTIFICATION OF MODERN AIRCRAFT  
*Period* *Obligations*  
 07/01/1992-12/31/1992 FY93: \$0 TOTAL: \$94,998  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 P H PATHAK LERC/E RHO 45-Elec Engr  
 R LEE  
 R C CHOU

**NAG 3-1058** **Ohio State University** **6569**  
 JET NOISE PRODUCTION AND RADIATION  
*Period* *Obligations*  
 07/07/1989-06/30/1994 FY93: \$40,000 TOTAL: \$290,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 J N SCOTT LERC/E A KREJSA 41-Aero Engr  
 R J BODONYI ....J F GROENEWEG

**NAG 3-1369** **Ohio State University** **6576**  
 EVALUATION AND DEVELOPMENT OF A PARALLEL VERSION OF THE NASA ENGINE PERFORMANCE PROGRAM  
*Period* *Obligations*  
 09/23/1992-07/31/1993 FY93: \$0 TOTAL: \$19,544  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 F OZGUNER LERC/B P CURLETT 22-Computer Science  
 J T COURTS ....J K LYTLE

**NAG 3-1082** **Ohio State University** **6570**  
 PROOF OF FEAS DEV AND ANAL OF ADVANCED CIRCUIT ARC H FOR INTELL PROCESSING IN COMMUNICATION SYSTEMS  
*Period* *Obligations*  
 11/03/1989-07/12/1992 FY93: \$427 TOTAL: \$149,565  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 S B BIBYK LERC/M ANDRO 45-Elec Engr

**NAG 3-1415** **Ohio State University** **6577**  
 CRYSTAL GROWTH AND FLUID MECHANICS PROBLEMS IN DIRECTIONAL SOLIDIFICATION  
*Period* *Obligations*  
 12/23/1992-12/31/1993 FY93: \$70,000 TOTAL: \$70,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 S TANVEER LERC/A CHAIT 47-Materials Engr  
 ....V PINES

**NAG 3-1108** **Ohio State University** **6571**  
 CONSTITUTIVE PARAMETER MEASUREMENTS OF LOSSY MATERIALS  
*Period* *Obligations*  
 01/09/1990-02/22/1994 FY93: \$313,806 TOTAL: \$593,279  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 A K DOMINEK LERC/C A STEARNS 49-Engr, NEC  
 ....D R BEHRENDT

**NAG 3-1416** **Ohio State University** **6578**  
 REVERSE MICELLE BASED SYNTHESIS OF MICROPOUROUS MATERIALS IN MICROGRAVITY  
*Period* *Obligations*  
 12/29/1992-12/31/1993 FY93: \$115,000 TOTAL: \$115,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 P K DUTTA LERC/T K GLASGOW 47-Materials Engr  
 ....P TIN

**NAG 3-1164** **Ohio State University** **6572**  
 VIDEO DATA COMPRESSION USING NEURAL NETWORKS  
*Period* *Obligations*  
 04/16/1990-12/31/1993 FY93: \$35,200 TOTAL: \$218,439  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 S C AHALT LERC/E A BOBINSKY 45-Elec Engr  
 A K KRISHNAMURTHY

**NAG 3-1437** **Ohio State University** **6579**  
 MODELING OF DIFFUSION IN LIQUID GE AND ITS ALLOYS  
*Period* *Obligations*  
 01/19/1993-01/14/1994 FY93: \$37,700 TOTAL: \$37,700  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 D G STROUD LERC/T K GLASGOW 47-Materials Engr  
 ....C R KROLIKOWSKI

**NAG 3-1220** **Ohio State University** **6573**  
 ULTRANSONIC EVALUATION OF DAMAGE IN CERAMIC MATRIX COMPOSITES  
*Period* *Obligations*  
 12/03/1990-12/31/1993 FY93: \$35,000 TOTAL: \$95,519  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 S I ROKHLIN LERC/G Y BAAKLINI 47-Materials Engr  
 ....A VARY

**NAG 3-1440** **Ohio State University** **6580**  
 PARALLELIZATION OF STRUCTURES CODES  
*Period* *Obligations*  
 01/19/1993-10/14/1993 FY93: \$30,000 TOTAL: \$30,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 F OZGUNER LERC/G J FOLLEN 22-Computer Science  
 ....R CLAUSS

**NAG 3-1308** **Ohio State University** **6574**  
 THERMAL PROBLEMS IN MATERIALS PROCESSING OF HIGH-TEMPERATURE COMPOSITES  
*Period* *Obligations*  
 12/10/1991-12/31/1993 FY93: \$88,698 TOTAL: \$136,439  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 S A KORPELA LERC/A CHAIT 47-Materials Engr

**NAG 3-1461** **Ohio State University** **6581**  
 HYDROGEN PASSIVATION AND CHARACTERIZATION OF MISMATCH H-INDUCED DEFECTS OF HETEROEPIAXIAL INP SOLAR CELLS  
*Period* *Obligations*  
 02/26/1993-02/21/1994 FY93: \$25,982 TOTAL: \$25,982  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 S A RINGEL LERC/I WEINBERG 45-Elec Engr



**NASA'S UNIVERSITY PROGRAM**  
**OHIO (Continued)**

**NAG 3-1465** **Ohio State University** **6582**  
EXPERIMENTAL STUDIES OF HIGH POWER, HIGH PRESSURE  
PLASMA SOURCES  
*Period* *Obligations*  
03/17/1993-03/07/1994 FY93: \$200,000 TOTAL: \$200,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
P J TURCHI LERC/F M CURRAN 42-Astro Engr  
...../J M SANKOVIC

**NAG 5-1645** **Ohio State University** **6589**  
EMISSION FROM SINGLY IONIZED IRON IN ACTIVE GALAXIES  
*Period* *Obligations*  
06/17/1991-06/30/1994 FY93: \$0 TOTAL: \$21,173  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
F W HAMANN GSFC/D WEST 11-Astronomy

**NAG 3-1496** **Ohio State University** **6583**  
ELECTROMAGNETIC SCATTERED FIELD EVALUATION AND DATA  
COMPRESSION USING IMAGING TECHNIQUES  
*Period* *Obligations*  
06/02/1993-03/31/1994 FY93: \$149,980 TOTAL: \$149,980  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
W D BURNSIDE LERC/E RHO 45-Elec Engr

**NAG 5-1824** **Ohio State University** **6590**  
SPECTRAL ENERGY DISTRIBUTION IN MRK 590 - INTERNATIONAL  
AGN WATCH: MAPPING THE BROAD-LINE REGION.  
*Period* *Obligations*  
11/08/1991-01/31/1994 FY93: \$14,216 TOTAL: \$75,456  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
B M PETERSON GSFC/D WEST 11-Astronomy

**NAG 3-1497** **Ohio State University** **6584**  
IMAGING THE PROBE DATA OF WRDC'S ADVANCED COMPACT  
RANGE  
*Period* *Obligations*  
06/02/1993-04/30/1994 FY93: \$25,041 TOTAL: \$25,041  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
W D BURNSIDE LERC/E RHO 45-Elec Engr  
I J GUPTA

**NAG 5-1992** **Ohio State University** **6591**  
THE STAR FORMATION HISTORY OF DWARF GALAXIES IN DI  
FFERENT ENVIRONMENTS  
*Period* *Obligations*  
06/12/1992-06/14/1993 FY93: \$10,116 TOTAL: \$22,484  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
VADER GSFC/D WEST 11-Astronomy

**NAG 3-1502** **Ohio State University** **6585**  
AN INVESTIGATION OF ANGULARLY-RESOLVED FILTERED RA  
YLEIGH SCATTERING TECHNIQUE  
*Period* *Obligations*  
06/18/1993-11/09/1993 FY93: \$36,720 TOTAL: \$36,720  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
M SAMIMY LERC/M P WERNET 13-Physics

**NAG 5-2041** **Ohio State University** **6592**  
INVESTIGATION FOR IMPROVING GLOBAL POSITIONING SYS TEM  
(GPS) ORBITS USING A DISCRETE SEQUENTIAL . .  
*Period* *Obligations*  
07/17/1992-08/14/1994 FY93: \$19,996 TOTAL: \$40,056  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
C C GOAD GSFC/B H PUTNEY 31-Atmos Sci

**NAG 5-684** **Ohio State University** **6586**  
AIRBORNE AND SPACEBORNE REMOTE SENSING OBSERVATION  
OF THE GREENLAND ICE SHEET  
*Period* *Obligations*  
05/23/1991-06/30/1994 FY93: \$76,208 TOTAL: \$324,408  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
K C JEZEK GSFC/W B KRABILL 39-Env Sci, NEC

**NAG 5-2192** **Ohio State University** **6593**  
X-RAY OBSERVATIONS OF THE BLACK HOLE CANDIDATE V40 4  
CYGNI  
*Period* *Obligations*  
02/09/1993-02/14/1994 FY93: \$6,000 TOTAL: \$6,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R M WAGNER GSFC/R PETRE 11-Astronomy

**NAG 5-1326** **Ohio State University** **6587**  
SOLAR LUMINOSITY, LINE BLANKETING AND VELOCITY FIELDS  
*Period* *Obligations*  
01/22/1990-02/29/1992 FY93: \$5,024 TOTAL: \$25,567  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
W E MITCHELL JR. GSFC/G D BULLOCK 19-Phys Sci, NEC  
...../J B GURMAN

**NAG 5-2355** **Ohio State University** **6594**  
MULTIWAVELENGTH STUDY OF X-RAY NOVAE  
*Period* *Obligations*  
08/25/1993-09/14/1994 FY93: \$19,106 TOTAL: \$19,106  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R M WAGNER GSFC/J P NORRIS 11-Astronomy  
C R SHRADER ...../N WHITE

**NAG 5-1644** **Ohio State University** **6588**  
ATOMIC DATA AND SPACTRAL ANALYSIS OF CARBON NITROG EN,  
OXYGEN AND SILICON IONS O  
*Period* *Obligations*  
06/17/1991-06/30/1993 FY93: \$0 TOTAL: \$67,004  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
A K PRADHAM GSFC/D WEST 11-Astronomy

**NAG 9-390** **Ohio State University** **6595**  
GUIDELINES FOR HUMAN INTERFACE WITH ARTIFICIAL  
INTELLIGENCE  
*Period* *Obligations*  
10/01/1989-12/01/1993 FY93: \$14,707 TOTAL: \$187,712  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
D D WOODS JSC/J MALIN 22-Computer Science

# **NASA'S UNIVERSITY PROGRAM** **OHIO (Continued)**

**NAG 9-677** **Ohio State University** **6596**  
NEW CONCEPTS FOR SUPPORTING COOPERATIVE FAULT MANA  
GEMENT  
*Period* *Obligations*  
03/10/1993-04/01/1994 FY93: \$15,288 TOTAL: \$15,288  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
D D WOODS JSC/J MALIN 22-Computer Science

**NAGW 2600** **Ohio State University** **6603**  
NAGW-3600/OHIO STATE UNIV/DETERMINING THE EXTENT AND  
DYNAMICS OF LATE PLEISTOCENE ICESHEETS IN THE SOV  
*Period* *Obligations*  
08/22/1991-03/31/1994 FY93: \$16,758 TOTAL: \$58,310  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
S L FORMAN HQ/R H THOMAS 32-Geological Sci

**NAG 9-707** **Ohio State University** **6597**  
THERMO ANALYTICAL RESEARCH OF INTEREST TO SPACE EX  
PLORATION  
*Period* *Obligations*  
08/18/1993-10/01/1994 FY93: \$14,600 TOTAL: \$14,600  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
P K GALLAGER JSC/J L GOODING 59-Life Sci, NEC

**NAGW 2639** **Ohio State University** **6604**  
MILLIMETER AND SUBMILLIMETER SPECTROSCOPY  
*Period* *Obligations*  
08/20/1991-02/28/1994 FY93: \$108,903 TOTAL: \$325,221  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
F C DE LUCIA HQ/M J KURYLO 13-Physics  
...../R F HAMPSON

**NAGW 750** **Ohio State University** **6598**  
SETI RESEARCH FDP NO-COST EXTENSION FOR TWELVE (12)  
MONTHS  
*Period* *Obligations*  
04/03/1992-03/31/1993 FY93: \$0 TOTAL: \$112,826  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J D KRAUS HQ/S W FOGLEMAN 99-Multi-Discip  
R S DIXON ...../J D RUMMEL

**NAGW 2644** **Ohio State University** **6605**  
DYNAMICS OF THE GREENLAND AND ANTARCTIC ICE SHEETS  
USING SPACE-BORNE IMAGING  
*Period* *Obligations*  
04/03/1992-06/30/1994 FY93: \$113,837 TOTAL: \$416,649  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
K JEZEK HQ/R H THOMAS 39-Env Sci, NEC

**NAGW 973** **Ohio State University** **6599**  
COMMERCIAL DEVELOPMENT OF SPACE  
*Period* *Obligations*  
09/01/1986-10/31/1993 FY93: \$1,250,000 TOTAL: \$8,271,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
H MOELLERING HQ/W A ORAN 41-Aero Engr  
J KIMERLING ...../A VILLAMIL  
A F SCHENK

**NAGW 2718** **Ohio State University** **6606**  
GENERAL CIRCULATION MODEL SIMULATIONS FOR ANTARCTI CA  
*Period* *Obligations*  
08/30/1991-05/31/1994 FY93: \$61,475 TOTAL: \$200,125  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
D H BROMWICH HQ/R H THOMAS 39-Env Sci, NEC  
...../R A SCHIFFER

**NAGW 1060** **Ohio State University** **6600**  
RESEARCH AND TRAINING GRANT IN HYPERSONICS  
*Period* *Obligations*  
03/15/1987-05/31/1992 FY93: \$0 TOTAL: \$997,336  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
S L PETRIE HQ/S M WANDER 19-Phys Sci, NEC  
G M GREGOREK ...../R A GRAVES

**NAGW 2786** **Ohio State University** **6607**  
MEAGING THE CANADIAN AND OHIO STATE SETI PROGRAMS  
*Period* *Obligations*  
01/03/1992-12/31/1993 FY93: \$0 TOTAL: \$94,480  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R S DIXON HQ/J D RUMMEL 11-Astronomy

**NAGW 2035** **Ohio State University** **6601**  
MICROWAVE OBSERVATIONS OF POLAR ICE  
*Period* *Obligations*  
06/09/1990-09/30/1993 FY93: \$49,127 TOTAL: \$360,946  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
K C JEZEK HQ/R H THOMAS 33-Oceanography  
...../W S WILSON

**NAGW 2906** **Ohio State University** **6608**  
SUBMILLIMETER LABORATORY INVESTIGATIONS: SPECTROS COPY  
AND COLLISIONS  
*Period* *Obligations*  
02/20/1992-01/31/1994 FY93: \$44,000 TOTAL: \$108,778  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
E HERBST HQ/L J CAROFF 11-Astronomy  
F C DE LUCIA

**NAGW 2589** **Ohio State University** **6602**  
NAGW-2589/OHIO STATE UNIV/NON-STANDARD MODELS FOR  
LARGE-SCALE STRUCTURES  
*Period* *Obligations*  
08/06/1991-02/28/1993 FY93: \$0 TOTAL: \$37,154  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R J SCHERRER HQ/D P HUENEMOERDER 11-Astronomy

**NAGW 3594** **Ohio State University** **6609**  
MUTATIONAL AND CELL BIOLOGICAL ANALYSIS  
*Period* *Obligations*  
05/20/1993-01/31/1994 FY93: \$50,000 TOTAL: \$50,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
F D FISK HQ/T W HALSTEAD 51-Biological Sci

**NAGW 3668** **Ohio State University** **6610**  
DETECTION OF EXTRATERRESTRIAL SIGNALS AT OHIO STAT E  
UNIVERSITY  
*Period* *Obligations*  
06/23/1993-05/31/1994 FY93: \$100,000 TOTAL: \$100,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
C A KLEIN HQ/J D RUMMEL 11-Astronomy

**NASA'S UNIVERSITY PROGRAM**  
**OHIO (Continued)**

**NAGW 3677** **Ohio State University** **6611**  
 SATELLITE AND MODEL ANALYSIS OF THE ATMOSPHERIC MO  
 ISTURE BUDGET  
*Period* *Obligations*  
 06/30/1993-04/30/1994 FY93: \$69,975 TOTAL: \$69,975  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 D H BROMWICH HQ/R H THOMAS 39-Env Sci, NEC  
 ....R A SCHIFFER

**NAGW 3730** **Ohio State University** **6612**  
 ROOT GRAVITROPISM IN MAIZE AND ARABIDOPSIS  
*Period* *Obligations*  
 09/03/1993-06/30/1994 FY93: \$60,000 TOTAL: \$60,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 M L EVANS HQ/T W HALSTEAD 51-Biological Sci

**NAG10-84** **Ohio State University** **6613**  
 INTERACTION OF CALCIUM CALMODULIN AND AUXIN IN ROOT  
 GRAVITROPISM  
*Period* *Obligations*  
 06/01/1991-11/30/1993 FY93: \$0 TOTAL: \$120,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 M L EVANS KSC/W M KNOTT 51-Biological Sci

**NAG10-85** **Ohio State University** **6614**  
 GRAVIPERCEPTION IN HIGHER PLANTS ARABIDOPSIS AS A MODEL  
 SYSTEM  
*Period* *Obligations*  
 05/31/1991-12/01/1993 FY93: \$0 TOTAL: \$110,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 F D SACK KSC/W M KNOTT 51-Biological Sci

**NAS 1-19404** **Ohio State University** **6615**  
 SAFIRE SCIENTIFIC SUPPORT  
*Period* *Obligations*  
 09/04/1991-10/03/1993 FY93: \$0 TOTAL: \$24,695  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 F C DELUCIA LARC/J G WELLS 31-Atmos Sci  
 ....J W RUSSELL

**NAS 3-26305** **Ohio State University** **6616**  
 COMPACT RANGE DESIGN  
*Period* *Obligations*  
 06/29/1991-06/30/1994 FY93: \$172,000 TOTAL: \$537,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 W D BURNSIDE LERC/R R KUNATH 45-Elec Engr  
 ....C A RAQUET

**NAS 5-30946** **Ohio State University** **6617**  
 GLRS TEAM MEMBER SUPPORT TO THE EARTH OBSERVING  
 SYSTEM (EOS) PROGRAM  
*Period* *Obligations*  
 12/18/1990-02/14/1993 FY93: \$0 TOTAL: \$45,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 R H THOMAS GSFC/T W HAMILTON 31-Atmos Sci

**NCA 2-648** **Ohio State University** **6618**  
 EVALUATION OF EJECTOR PUMPS FOR INLET FLOW SIMULAT ION  
*Period* *Obligations*  
 08/14/1991-08/14/1992 FY93: \$0 TOTAL: \$20,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 J LEE ARC/J ROSS 41-Aero Engr

**NCC 2-592** **Ohio State University** **6619**  
 COGNITIVE ENGINEERING IN AEROSPACE APPLICATIONS  
*Period* *Obligations*  
 03/13/1989-06/30/1993 FY93: \$0 TOTAL: \$643,396  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 D D WOODS ARC/K CORKER 41-Aero Engr  
 ....B T SWEET

**NCC 2-615** **Ohio State University** **6620**  
 ENROUTE FLIGHT PATH PLANNING: COOPERATIVE PERFOR MANCE  
 OF FLIGHT CREWS AND KNOWLEDGE BASED SYSTEMS  
*Period* *Obligations*  
 06/21/1989-10/31/1992 FY93: \$0 TOTAL: \$159,839  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 P J SMITH ARC/E A PALMER 69-Psych, NEC  
 E MACCOY ....R C GRAEBER

**NCC 3-197** **Ohio State University** **6621**  
 HIGH TC SUPERCONDUCTING MICROWAVE COMPONENTS FOR S  
 PACE COMMUNICATIONS RECEIVERS  
*Period* *Obligations*  
 02/07/1991-09/30/1992 FY93: \$0 TOTAL: \$35,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 G V VALCO LERC/K B BHASIN 45-Elec Engr

**NCC 3-198** **Ohio State University** **6622**  
 A STUDY OF UNSTEADY PRESSURES ON OXCILLATING AIRFO IL  
 IN CASCADE / 4320  
*Period* *Obligations*  
 01/30/1991-01/13/1993 FY93: \$0 TOTAL: \$145,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 J D LEE LERC/J K RAMSEY 41-Aero Engr  
 G M GREGOREK

**NCC 3-234** **Ohio State University** **6623**  
 MATRIX CHARACTERIZATION AND HOT PRESSING OF SRAL2 SI  
 208  
*Period* *Obligations*  
 11/08/1991-11/30/1993 FY93: \$39,957 TOTAL: \$71,756  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 C H DRUMMOND LERC/N P BANSAL 47-Materials Engr  
 ....S R LEVINE

**NGT 00-030-053** **Ohio State University** **6624**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period* *Obligations*  
 09/06/1991-08/31/1993 FY93: \$0 TOTAL: \$44,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 G CASASSA HQ/D M BUTLER 39-Env Sci, NEC  
 I WHILLANS ....G S WILSON

**NGT 00-050-378** **Ohio State University** **6625**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period* *Obligations*  
 09/13/1988-09/30/1991 FY93: \$1,003 TOTAL: \$56,097  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 G J VALCO HQ/F C OWENS 45-Elec Engr

**NGT 00-050-668** **Ohio State University** **6626**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period* *Obligations*  
 09/11/1990-09/30/1993 FY93: \$0 TOTAL: \$66,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 F D SACK HQ/F C OWENS 51-Biological Sci

**NASA'S UNIVERSITY PROGRAM**  
**OHIO (Continued)**

**NGT 00-050-945** **Ohio State University** **6627**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period* *Obligations*  
07/01/1992-06/30/1994 FY93: \$22,000 TOTAL: \$44,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
M SAMIMY LERC/F MONTEGANI 46-Mech Engr

**NGT 00-051-072** **Ohio State University** **6628**  
GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period* *Obligations*  
06/02/1993-06/30/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
M R FOSTER HQ/D A HOLLAND 41-Aero Engr

**NGT 00-070-349** **Ohio State University** **6629**  
NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
MINORITY FOCUS PROGRAM  
*Period* *Obligations*  
08/12/1993-09/06/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
S KORPELA HQ/D K RUSSELL 46-Mech Engr

**NSG-1498** **Ohio State University** **6630**  
ANALYSIS OF AIRBORNE ANTENNA PATTERNS  
*Period* *Obligations*  
01/16/1978-12/31/1993 FY93: \$49,993 TOTAL: \$1,097,890  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
W D BURNSIDE LARC/M C GILREATH 45-Elec Engr  
R G ROJAS ....C R COCKRELL

**NSG-1613** **Ohio State University** **6631**  
RADAR CROSS SECTION STUDIES  
*Period* *Obligations*  
04/18/1979-11/15/1993 FY93: \$399,966 TOTAL: \$7,190,445  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
W D BURNSIDE LARC/M C GILREATH 45-Elec Engr  
L PETERS JR ....W C SAWYER  
A K DOMINEK

**NSG-5265** **Ohio State University** **6632**  
BASIC RESEARCH FOR THE EARTH DYNAMICS PROGRAM  
*Period* *Obligations*  
04/01/1978-12/31/1991 FY93: \$1,430 TOTAL: \$785,839  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
I I MUELLER GSFC/H V FREY 32-Geological Sci  
C GOAD ....D E SMITH

**NAG 1-1423** **Ohio University** **6633**  
GPS INTERFEROMETRY  
*Period* *Obligations*  
04/06/1992-03/31/1994 FY93: \$114,279 TOTAL: \$209,279  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
F VAN GRAAS LARC/R M HUESCHEN 49-Engr, NEC

**NAG 3-1269** **Ohio University** **6634**  
MEASURE HEAT TRANSFER IN REGENERATORS UNDER OSCILLATING FLOW CONDITIONS  
*Period* *Obligations*  
04/05/1991-02/28/1993 FY93: \$0 TOTAL: \$149,960  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
G WOOD LERC/D M SWEC 46-Mech Engr  
I URIELI ....L G THIEME

**NAG 8-167** **Ohio University** **6635**  
ADVANCES AND APPLICATION OF TRANSFER FUNCTION SYST  
*Period* *Obligations*  
07/09/1990-08/01/1992 FY93: \$0 TOTAL: \$125,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J R MITCHELL MSFC/D P VALLELY 46-Mech Engr  
R D IRWIN

**NAG 8-217** **Ohio University** **6636**  
COMPUTERIZED DESIGN OF CONTROLLERS USING DATA MODELS  
*Period* *Obligations*  
02/21/1992-04/19/1993 FY93: \$70,000 TOTAL: \$135,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R D IRWIN MSFC/A P BUKLEY 49-Engr, NEC  
J R MITCHELL ....M BUTLER

**NAG 8-242** **Ohio University** **6637**  
CONTROLLER REDESIGN HUBBLE SPACE TELESCOPE  
*Period* *Obligations*  
07/23/1992-06/30/1993 FY93: \$30,000 TOTAL: \$60,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R D IRWIN MSFC/A P BUKLEY 49-Engr, NEC  
D A LAWRENCE ....W H WALKER

**NCC 2-827** **Ohio University** **6638**  
DISTRIBUTED AND COOPERATIVE PROBLEM-SOLVING IN THE NATIONAL AVIATION SYSTEM  
*Period* *Obligations*  
09/20/1993-02/28/1994 FY93: \$29,600 TOTAL: \$29,600  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
C E MCCOY ARC/J M ORASANU 59-Life Sci, NEC  
P J SMITH

**NCC 3-194** **Ohio University** **6639**  
IMPROVED FILM ADHESION TO POLYIMIDE BY ION IMPLANTATION  
*Period* *Obligations*  
01/04/1991-01/13/1994 FY93: \$30,000 TOTAL: \$75,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
D A GULING LERC/M A MEADOR 12-Chemistry

**NCC 3-227** **Ohio University** **6640**  
MODELING A FIBER COATING HOT WALL CVD REACTOR  
*Period* *Obligations*  
08/14/1991-08/31/1992 FY93: \$0 TOTAL: \$15,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
M K ALAM LERC/T K GLASGOW 47-Materials Engr

**NCC 3-271** **Ohio University** **6641**  
PROGRAM ANALYSIS: EVALUATION OF COMMUNICATION PRACTICES IN THE DEVELOPMENT OF PERSONAL AND ORG EFF  
*Period* *Obligations*  
06/11/1992-09/14/1992 FY93: \$0 TOTAL: \$2,500  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
S GYSEGAN LERC/C D FORMAN 79-Soc Sci, NEC  
C HALE ....D L GRIEST

**NGR36-9017** **Ohio University** **6642**  
AIR TRANSPORTATION PROBLEMS WITH EMPHASIS ON GENERAL AVIATION AVONICS \$50,000  
*Period* *Obligations*  
02/26/1971-01/31/1994 FY93: \$130,000 TOTAL: \$1,876,691  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R H MCFARLAND LARC/F R MORRELL 45-Elec Engr  
.....W H BRYANT

**NASA'S UNIVERSITY PROGRAM**  
**OHIO (Continued)**

**NGT 00-050-863** **Ohio University** **6643**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period* *Obligations*  
01/03/1992-08/31/1994 FY93: \$22,000 TOTAL: \$63,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
F C HAGERMAN KSC/B MARTIN 39-Env Sci, NEC  
G A DUDLEY

**NAG 1-444** **University of Akron** **6644**  
SOLUTION ALGORITHMS FOR STEADY AND TRANSIENT ROLLING CONTACT  
*Period* *Obligations*  
02/13/1984-09/30/1991 FY93: \$54 TOTAL: \$166,472  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J PADOVAN LARC/J A TANNER 29-Math/Cmputer,NEC  
...../M C LOPEZ

**NAG 1-448** **University of Akron** **6645**  
SYNTHESIS AND CHARACTERIZATION OF THERMALLY-STABLE SOLVENT/IMPACT RESISTANT THERMOPLASTIC POLYIMIDES  
*Period* *Obligations*  
02/13/1984-03/31/1994 FY93: \$96,166 TOTAL: \$874,994  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
F W HARRIS LARC/P M HERGENROTHER 12-Chemistry  
...../B J JENSEN

**NAG 3-50** **University of Akron** **6646**  
NASA LEWIS UNIV GRADUATE COOPERATIVE FELLOWSHIP PROGRAM  
*Period* *Obligations*  
03/17/1980-04/30/1992 FY93: \$23,957 TOTAL: \$452,142  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
D G FERTIS LERC/C C CHAMIS 41-Aero Engr  
T P CHANG ...../R H JOHNS  
D N ROBINSON

**NAG 3-379** **University of Akron** **6647**  
MULTIAXIAL STRUCTURAL BEHAVIOR OF HIGH TEMPERATURE MATERIALS  
*Period* *Obligations*  
12/02/1982-10/17/1993 FY93: \$33,158 TOTAL: \$933,750  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
D N ROBINSON LERC/S M ARNOLD 41-Aero Engr  
J R ELLIS

**NAG 3-479** **University of Akron** **6648**  
MATHEMATICAL AND EXPERIMENTAL MODELING OF IMPACT ICE DISPERSION MECHANISMS  
*Period* *Obligations*  
10/17/1983-01/31/1992 FY93: \$0 TOTAL: \$364,602  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R J SCAVUZZO LERC/W OLSEN 41-Aero Engr  
M L CHU

**NAG 3-664** **University of Akron** **6649**  
HIERARCHICAL PARALLEL COMPUTER ARCHITECTURES DEFINED BY COMPUTATIONAL MULTIDISCIPLINARY MECHANICS  
*Period* *Obligations*  
09/26/1985-02/14/1992 FY93: \$39,575 TOTAL: \$236,554  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J PADOVAN LERC/C C CHAMIS 41-Aero Engr  
...../D A HOPKINS

**NAG 3-675** **University of Akron** **6650**  
FLOW VISUALIZATION METHOD FOR THIN FILM TECHNOLOGY  
*Period* *Obligations*  
12/23/1985-09/30/1992 FY93: \$229 TOTAL: \$207,190  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
M J BRAUN LERC/M P PROCTOR 49-Engr, NEC  
C BATUR

**NAG 3-872** **University of Akron** **6651**  
SYMBOLIC DRIVATION OF CONSTITUTIVE MATERIAL MODESL AND AUTOMATIC CODE GENERATION  
*Period* *Obligations*  
01/20/1988-01/31/1994 FY93: \$55,122 TOTAL: \$363,209  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
H Q TAN LERC/S M ARNOLD 41-Aero Engr

**NAG 3-900** **University of Akron** **6652**  
VIBRIATION SIGNATURE ANALYSIS OF GEAR TRANSMISSION  
*Period* *Obligations*  
04/20/1988-09/11/1992 FY93: \$0 TOTAL: \$180,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
F K CHOY LERC/J J ZAKRAJSEK 46-Mech Engr

**NAG 3-901** **University of Akron** **6653**  
FINITE ELEMENT IMPLEMENTATION AND COMPUTATUIONAL TECHNIQUES  
*Period* *Obligations*  
04/28/1988-11/18/1993 FY93: \$44,997 TOTAL: \$325,935  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
T P CHANG LERC/S M ARNOLD 41-Aero Engr  
T Y CHANG

**NAG 3-923** **University of Akron** **6654**  
EXPERT SYS DIAGNOSTIC  
*Period* *Obligations*  
08/30/1988-03/31/1992 FY93: \$1,831 TOTAL: \$157,468  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J DURKIN LERC/E J PETRIK 29-Math/Cmputer,NEC

**NAG 3-969** **University of Akron** **6655**  
EXPERIMENTAL AND ANALYTICAL STUDY OF BRUSH SEALS  
*Period* *Obligations*  
12/29/1988-06/09/1994 FY93: \$37,355 TOTAL: \$308,748  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
M J BRAUN LERC/G BOBULA 46-Mech Engr  
...../R C HENDRICKS

**NAG 3-1047** **University of Akron** **6656**  
OPTIMAL SPIRAL BEVEL TRANSMISSION DESIGN  
*Period* *Obligations*  
05/17/1989-04/05/1994 FY93: \$60,000 TOTAL: \$247,700  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
M SAVAGE LERC/H H COE 46-Mech Engr

**NAG 3-1071** **University of Akron** **6657**  
FURTHER DEVELOPMENT OF A NUMERICAL ALOGRITHM FOR M ODELING HYDRODYNAMIC AND HYDROSTATIC JOURNAL BEARIN  
*Period* *Obligations*  
09/05/1989-06/30/1992 FY93: \$3,877 TOTAL: \$72,262  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
M J BRAUN LERC/R J CAPALDI 46-Mech Engr  
F K CHOY

**NASA'S UNIVERSITY PROGRAM**  
**OHIO (Continued)**

**NAG 3-1142**                      **University of Akron**                      **6658**  
 PARALLELIZED MODELING AND SOLUTION SCHEMES FOR HIERARCHICALLY SCALED SIMULATIONS  
*Period*                                      *Obligations*  
 02/13/1990-02/13/1992                      FY93: \$37,586                      TOTAL: \$32,414  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 J PADOVAN                      LERC/C C CHAMIS                      41-Aero Engr  
    ....P L MURTHY

**NAG 3-1305**                      **University of Akron**                      **6665**  
 RHEOLOGICAL CHARACTERIZATION OF EXPERIMENTAL POLYMER IDE RESINS  
*Period*                                      *Obligations*  
 11/06/1991-11/30/1993                      FY93: \$20,000                      TOTAL: \$39,922  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 E A MEINECKE                      LERC/G D ROBERTS                      47-Materials Engr

**NAG 3-1146**                      **University of Akron**                      **6659**  
 HIERARCHICAL PARTITIONING OF GLOBAL CONTROLLERS  
*Period*                                      *Obligations*  
 02/27/1990-01/07/1994                      FY93: \$45,029                      TOTAL: \$140,877  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 P H SCHMIDT                      LERC/P J OUZTS                      21-Mathematics  
    ....C F LORENZO

**NAG 3-1306**                      **University of Akron**                      **6666**  
 APPLICATIONS OF SYMBOLIC COMPUTATION IN FRACTURE MECHANICS  
*Period*                                      *Obligations*  
 11/12/1991-05/14/1993                      FY93: \$0                      TOTAL: \$35,087  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 H QIAN TAN                      LERC/S M ARNOLD                      41-Aero Engr

**NAG 3-1189**                      **University of Akron**                      **6660**  
 MINORITY ENGINEERING PROGRAM  
*Period*                                      *Obligations*  
 06/21/1990-07/22/1994                      FY93: \$16,000                      TOTAL: \$91,000  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 B MCCLAIN                      LERC/R F LAWRENCE                      99-Multi-Discip  
 P LAM

**NAG 3-1350**                      **University of Akron**                      **6667**  
 DESIGN OPTIMIZATION OF STRUCTURAL COMPONENTS FOR THE SPACE STATION FREEDOM IN DYNAMIC REGIME  
*Period*                                      *Obligations*  
 05/19/1992-12/31/1993                      FY93: \$60,000                      TOTAL: \$94,733  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 T Y CHANG                      LERC/L BERKE                      42-Astro Engr  
    ....D A HOPKINS

**NAG 3-1190**                      **University of Akron**                      **6661**  
 CONTACT ANALYSIS IN SPIRAL BEVEL GEARS  
*Period*                                      *Obligations*  
 07/02/1990-12/31/1992                      FY93: \$11,425                      TOTAL: \$88,408  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 G D BIBEL                      LERC/R F HANDSCHULT                      46-Mech Engr  
    ....J J COY

**NAG 3-1361**                      **University of Akron**                      **6668**  
 EXPERIMENTAL INVESTIGATION OF ROTATING CYLINDRICAL SEAL CONFIGURATIONS FOR NUMERICAL CODE VALIDATION  
*Period*                                      *Obligations*  
 07/10/1992-06/14/1994                      FY93: \$0                      TOTAL: \$65,381  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 M J BRAUN                      LERC/A D LIANG                      46-Mech Engr  
 F K CHOY                      ....R C HENDRICKS

**NAG 3-1223**                      **University of Akron**                      **6662**  
 DAMAGE MECHANICS CONTROLLED BY THE INTERACTION OF MICROCRACKS IN THE INTERPHASE OF MMC AND BMC  
*Period*                                      *Obligations*  
 11/28/1990-11/18/1993                      FY93: \$60,170                      TOTAL: \$146,003  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 W K BINIENDA                      LERC/S M ARNOLD                      41-Aero Engr

**NAG 3-1366**                      **University of Akron**                      **6669**  
 NUMERICAL AND EXPERIMENTAL STUDIES ON FOIL BEARINGS COUPLING OF THERMAL AND DYNAMIC NON-LINEAR EFFECTS  
*Period*                                      *Obligations*  
 09/14/1992-09/30/1993                      FY93: \$0                      TOTAL: \$102,784  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 M J BRAUN                      LERC/J F WALKER                      46-Mech Engr  
 F K CHOY

**NAG 3-1236**                      **University of Akron**                      **6663**  
 STUDY OF SWITCHING TRANSIENTS IN HIGH FREQUENCY CONVERTERS / 5430  
*Period*                                      *Obligations*  
 01/14/1991-01/01/1993                      FY93: \$0                      TOTAL: \$45,447  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 D S ZINGER                      LERC/L M BURROWS                      45-Elec Engr  
 M E ELBULUK                      ....I G HANSEN

**NAG 3-1376**                      **University of Akron**                      **6670**  
 DEVELOPMENT OF A MODEL BASED TECHNIQUE FOR GEAR DIAGNOSTICS USING THE WIGNER-VILLE METHOD  
*Period*                                      *Obligations*  
 10/30/1992-10/31/1993                      FY93: \$93,599                      TOTAL: \$93,599  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 F K CHOY                      LERC/J J ZAKRAJSEK                      46-Mech Engr

**NAG 3-1289**                      **University of Akron**                      **6664**  
 COMPRESSIVE PROPERTIES AND INTERFACE OF CARBON FIBERS FOR ADVANCED COMPOSITES  
*Period*                                      *Obligations*  
 06/28/1991-11/30/1993                      FY93: \$30,000                      TOTAL: \$64,999  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 R K EBY                      LERC/K J BOWLES                      47-Materials Engr  
    ....G D ROBERTS

**NAG 3-1444**                      **University of Akron**                      **6671**  
 NEURAL NETWORKS CONTROL OF A MULTIPLE DEGREE-OF-FREEDOM REACTION COMPENSATING PLATFORM SYSTEM  
*Period*                                      *Obligations*  
 01/25/1993-07/14/1993                      FY93: \$10,164                      TOTAL: \$10,164  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 Y J LIN                      LERC/B B CHOI                      46-Mech Engr

# NASA'S UNIVERSITY PROGRAM

## OHIO (Continued)

**NAG 3-1450** **University of Akron** **6672**  
 INTERDISCIPLINARY RESEARCH IN COMPUTATIONAL FLUID  
 DYNAMICS AND CONTROL SYSTEMS  
*Period* *Obligations*  
 02/10/1993-02/07/1994 FY93: \$68,496 TOTAL: \$68,496  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 T T HARTLEY LERC/K J MELCHER 41-Aero Engr  
 ....C F LORENZO

**NCC 3-164** **University of Akron** **6679**  
 PULSED NMR AND DIFFUSION STUDIES IN HIGH TEMPERATURE  
 STRUCTURAL POLYMERS AND COMPOSITES  
*Period* *Obligations*  
 01/29/1990-12/31/1993 FY93: \$0 TOTAL: \$124,238  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 E D VON MEERWALL LERC/G D ROBERTS 13-Physics

**NAG 3-1491** **University of Akron** **6673**  
 UTILIZATION OF THE FRACTIONAL CALCULUS IN CONTROL  
 ENGINEERING  
*Period* *Obligations*  
 04/26/1993-05/31/1994 FY93: \$29,995 TOTAL: \$29,995  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 T T HARTLEY LERC/C F LORENZO 49-Engr, NEC

**NCC 3-165** **University of Akron** **6680**  
 HIGH SPEED FLOW VISUALIZATION IN COMPRESSIBLE GASES:  
 APPLICATION TO FLOW IN A TRANSITION DUCT  
*Period* *Obligations*  
 01/30/1990-10/31/1993 FY93: \$0 TOTAL: \$62,885  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 M J BRAUN LERC/S A HIPPENSTEELE 46-Mech Engr  
 ....L M RUSSELL

**NAG 3-1493** **University of Akron** **6674**  
 STATE-VARIABLES INTEGRATORS IN COMPUTATIONAL VISCO  
 PASTICITY  
*Period* *Obligations*  
 04/21/1993-04/30/1994 FY93: \$35,000 TOTAL: \$35,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 A F SALEEB LERC/S M ARNOLD 41-Aero Engr

**NCC 3-178** **University of Akron** **6681**  
 APPLICATION OF UPWIND PARABOLIZED NAVIER-STOKES CO DE  
 TO AIRCRAFT PROPULSION SYSTEMS  
*Period* *Obligations*  
 07/05/1990-11/30/1993 FY93: \$77,325 TOTAL: \$230,062  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 B P LEONARD LERC/M S LIOU 41-Aero Engr  
 S MOKHTARI

**NAG 3-1498** **University of Akron** **6675**  
 MODELING AND STRUCTURE-PROPERTY RELATIONSHIPS OF POL  
 YMIDE THERMOSETTING RESINS  
*Period* *Obligations*  
 05/26/1993-03/31/1994 FY93: \$19,887 TOTAL: \$19,887  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 F N KELLEY LERC/G D ROBERTS 47-Materials Engr  
 V GALIATSATOS

**NCC 3-188** **University of Akron** **6682**  
 3-D FEM SIM OF DELAMIN PROG IN CROSS-PLY GRAPH-POL LAM  
 INIT BY TRANSV CRACKS IN 90 LAYER  
*Period* *Obligations*  
 10/24/1990-11/30/1993 FY93: \$33,619 TOTAL: \$89,490  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 W K BINIENDA LERC/G D ROBERTS 47-Materials Engr

**NCC 3-104** **University of Akron** **6676**  
 SUPPORT MICROGRAV MATERIALS SCIENCE  
*Period* *Obligations*  
 12/11/1987-12/31/1993 FY93: \$279,360 TOTAL: \$1,220,116  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 G W YOUNG LERC/G P ROBERTS 47-Materials Engr  
 S I HARIHARAN ....T K GLASGOW

**NCC 3-209** **University of Akron** **6683**  
 MULTIVARIABLE ADAPTATIVE CONTROL OF INTERFACE FOR  
 PROGRAMMABLE MULTIZONE CRYSTAL GROWTH FURNACE  
*Period* *Obligations*  
 02/27/1991-02/28/1994 FY93: \$36,498 TOTAL: \$103,203  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 C BATUR LERC/B N ROSENTHAL 47-Materials Engr  
 ....T K GLASGOW

**NCC 3-150** **University of Akron** **6677**  
 ADPT CONTROL OF INTERFACE BY TEMP/INTERFACE FEEDBACK  
 IN TRANS MULTI-ZONE CRY GROWTH  
*Period* *Obligations*  
 09/30/1989-11/30/1991 FY93: \$47 TOTAL: \$33,965  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 C BATUR LERC/B N ROSENTHAL 46-Mech Engr  
 ....T K GLASGOW

**NCC 3-211** **University of Akron** **6684**  
 STEREO IMAGING OF INTERFACE SHAPE DURING CRYSTAL G  
 ROWTH IN TRANSPARENT FURNACES  
*Period* *Obligations*  
 03/05/1991-09/30/1993 FY93: \$0 TOTAL: \$71,575  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 C BATUR LERC/T K GLASGOW 47-Materials Engr

**NCC 3-161** **University of Akron** **6678**  
 A NON-INTRU COMP-AIDED METH FOR TEMP AND VEL EVAL IN  
 FLU USING THERMOCHR LIQ CRYST (TLC)  
*Period* *Obligations*  
 01/23/1990-10/31/1993 FY93: \$0 TOTAL: \$71,384  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 M J BRAUN LERC/S A HIPPENSTEELE 46-Mech Engr  
 ....C M RUSSELL

**NCC 3-225** **University of Akron** **6685**  
 ORGANOMETALLIC POLYMERIC CONDUCTORS  
*Period* *Obligations*  
 06/28/1991-12/31/1993 FY93: \$83,498 TOTAL: \$262,273  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 W J YOUNGS LERC/M A MEADOR 12-Chemistry

**NASA'S UNIVERSITY PROGRAM**  
**OHIO (Continued)**

**NCC 3-231 University of Akron 6686**  
 STERO IMAGING BASED PARTICLE VELOCIMETER  
*Period Obligations*  
 09/05/1991-05/31/1993 FY93: \$0 TOTAL: \$15,800  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 C BATUR LERC/M B MEYER 47-Materials Engr

**NCC 3-240 University of Akron 6687**  
 EVAL AN IMP METHOD FOR DET THE SHAPE OF SMALL DISP  
 ERSED PARTICLES USING DYN DEPOLAR LASER LGT SCATT  
*Period Obligations*  
 12/01/1991-10/31/1993 FY93: \$0 TOTAL: \$35,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 H M CHEUNG LERC/T K GLASGOW 47-Materials Engr

**NCC 3-283 University of Akron 6688**  
 SHOCK POSITION SENSING: THEORY, EXPERIMENT AND DES IGN  
*Period Obligations*  
 11/17/1992-12/31/1993 FY93: \$50,000 TOTAL: \$50,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S I HARIHARAN LERC/G ADAUIOVSKY 45-Elec Engr

**NCC 3-314 University of Akron 6689**  
 FREE VIBRATION AND DYNAMIC RESPONSE ANALYSIS OF SPINNING  
 STRUCTURES  
*Period Obligations*  
 07/16/1993-10/14/1994 FY93: \$10,000 TOTAL: \$10,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 H M CHEUNG LERC/L A GREENBUER-SENG 47-Materials Engr

**NGT 00-051-182 University of Akron 6690**  
 GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 09/02/1993-08/31/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M ELBULUK LERC/F MONTAGANI 45-Elec Engr

**NGT 00-070-235 University of Akron 6691**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
 MINORITY FOCUS PROGRAM  
*Period Obligations*  
 07/15/1991-06/30/1994 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R K EBY HQ/F C OWENS 47-Materials Engr

**NAG 1-1280 University of Cincinnati 6692**  
 STRUCTURAL SIMILITUDE AND SCALING LAWS - FDP  
*Period Obligations*  
 06/12/1991-06/03/1994 FY93: \$34,177 TOTAL: \$129,283  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 G J SIMITSES LARC/J H STARNES 41-Aero Engr

**NAG 1-1284 University of Cincinnati 6693**  
 ANALYSIS OF VIRTUAL PASSIVE CONTROLLERS FOR FLEXIBLE  
 SPACE STRUCTURES FDP  
*Period Obligations*  
 06/14/1991-12/11/1992 FY93: \$1 TOTAL: \$55,760  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 T WILLIAMS LARC/J JUANG 42-Astro Engr  
 ....L HORTA

**NAG 1-1418 University of Cincinnati 6694**  
 VIBRATION ISOLATION FOR FLEXIBLE SPACE STRUCTURES: A  
 ZERO-BASED APPROACH  
*Period Obligations*  
 04/24/1992-04/26/1994 FY93: \$44,809 TOTAL: \$74,805  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 T WILLIAMS LARC/P G MAGHAMI 42-Astro Engr

**NAG 3-397 University of Cincinnati 6695**  
 GLOBAL RELAXATION WITH THE PNS EQUATIONS FOR INTERNAL  
 FLOWS  
*Period Obligations*  
 02/08/1983-02/28/1994 FY93: \$21,124 TOTAL: \$228,198  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S G RUBIN LERC/J J ADAMCZYK 41-Aero Engr

**NAG 3-852 University of Cincinnati 6696**  
 OPTICAL WAVEGUIDE TECHNOLOGY UTILIZING SILICON SUB  
 STRATES FOR SENSOR APPLICATIONS  
*Period Obligations*  
 12/23/1987-12/14/1993 FY93: \$55,000 TOTAL: \$295,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J T BOYD LERC/G BEHEIM 13-Physics  
 H JACKSON

**NAG 3-1173 University of Cincinnati 6697**  
 GRAD EDU AND RES PROG FOR COMPUT SIM OF AEROSPACE PR  
 OP SYS:STRUC WITH MULTI-DIS FIN ELEMENTS  
*Period Obligations*  
 05/30/1990-04/30/1993 FY93: \$0 TOTAL: \$150,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A H NAYFEH LERC/C C CHAMIS 41-Aero Engr  
 G J SIMITSES ....D A HOPKINS

**NAG 3-1174 University of Cincinnati 6698**  
 GRADUATE EDUCATIONAL AND RESEARCH PROGRAM IN EXPERT  
 COMPUTATIONAL SIMULATION OF AEROSPACE PROP SYS  
*Period Obligations*  
 05/30/1990-04/30/1993 FY93: \$0 TOTAL: \$149,904  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A H NAYFEH LERC/L BERKE 41-Aero Engr  
 G J SIMITSES ....C C CHAMIS

**NAG 3-1175 University of Cincinnati 6699**  
 GRADUATE EDUCATIONAL AND RESEARCH PROGRAM FOR COMPUT  
 ATIONAL SIMULATION OF AEROSPACE PROPULSION STRUCT  
*Period Obligations*  
 05/30/1990-04/30/1993 FY93: \$0 TOTAL: \$150,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A H NAYFEH LERC/C C CHAMIS 41-Aero Engr  
 G J SIMITSES ....P L MURTHY



**NASA'S UNIVERSITY PROGRAM**  
**OHIO (Continued)**

**NAG 3-1178**                      **University of Cincinnati**                      **6700**  
RNS PROCEDURES FOR UNSTEADY INLET FLOW  
*Period*    *Obligations*  
06/07/1990-04/30/1994                      FY93: \$45,000                      TOTAL: \$114,583  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
S G RUBIN                      LERC/T J BENSON                      41-Aero Engr  
P K KHOSLA

**NAG 9-717**                      **University of Cincinnati**                      **6707**  
REDUCTION ON ORBIT DATA FOR MASS PROPERTIES DETERMINATION  
*Period*    *Obligations*  
09/28/1993-09/01/1994                      FY93: \$15,958                      TOTAL: \$15,958  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
T W WILLIAMS                      JSC/S H GOLDSTEIN                      41-Aero Engr

**NAG 3-1188**                      **University of Cincinnati**                      **6701**  
M2SE SUMMER INSTITUTE AND UNDERGRADUATE STUDY  
*Period*    *Obligations*  
07/27/1990-07/22/1994                      FY93: \$73,266                      TOTAL: \$231,647  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
E N PRATHER                      LERC/R F LAWRENCE                      99-Multi-Discip

**NAGW 1407**                      **University of Cincinnati**                      **6708**  
UNIVERSITY SPACE ENGINEERING RESEARCH CENTER  
*Period*    *Obligations*  
08/17/1988-10/31/1993                      FY93: \$1,455,000                      TOTAL: \$6,631,424  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
L M GALES                      HQ/S C HARTMAN                      49-Engr, NEC

**NAG 3-1213**                      **University of Cincinnati**                      **6702**  
AN INVESTIGATION FO BLEED CONFIGURATIONS AND THEIR EFFECTS ON SHOCK WAVE/BOUNDARY LAYER INTERACTIONS  
*Period*    *Obligations*  
10/29/1990-12/31/1993                      FY93: \$51,000                      TOTAL: \$152,416  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
A HAMED                      LERC/J D SAUNDERS                      41-Aero Engr

**NAGW 3230**                      **University of Cincinnati**                      **6709**  
NAGW-3230/UNIV CINCINNATI/ASTRONOMY IN THE CLASSROOM II  
*Period*    *Obligations*  
11/02/1992-07/01/1993                      FY93: \$4,851                      TOTAL: \$4,851  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
M L SITKO                      HQ/L LAPIANA                      11-Astronomy  
..../G P NEWTON

**NAG 3-1392**                      **University of Cincinnati**                      **6703**  
LIQUID METAL MICRO HEAT PIPES FOR SPACE RADIATOR APPLICATIONS  
*Period*    *Obligations*  
12/22/1992-09/30/1993                      FY93: \$38,887                      TOTAL: \$38,887  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
F M GERNER                      LERC/K W BAKER                      46-Mech Engr  
H T HENDERSON

**NAGW 3307**                      **University of Cincinnati**                      **6710**  
NAGW-3307/UNIV CINCINNATI/ORDOVICIAN BIODIVERSITY: GEOGRAPHY AND ENVIRONMENT  
*Period*    *Obligations*  
12/31/1992-11/30/1993                      FY93: \$53,798                      TOTAL: \$53,798  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
A MILLER                      HQ/J D RUMMEL                      32-Geological Sci

**NAG 3-1472**                      **University of Cincinnati**                      **6704**  
PARALLELIZATION OF THE IMPLICIT RPLUS ALGORITHM  
*Period*    *Obligations*  
03/29/1993-11/14/1993                      FY93: \$20,397                      TOTAL: \$20,397  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
P D ORKWIS                      LERC/D R REDDY                      41-Aero Engr

**NAG10-124**                      **University of Cincinnati**                      **6711**  
RESEARCH FUSION AND REDUNDANCY MANAGEMENT FOR HEALTH MONITORING ARRAYS  
*Period*    *Obligations*  
07/01/1993-10/31/1993                      FY93: \$52,757                      TOTAL: \$52,757  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
H T THURMAN                      KSC/N SLIWA                      22-Computer Science  
H FAN

**NAG 3-1527**                      **University of Cincinnati**                      **6705**  
A GRADUATE EDUCATIONAL AND RESEARCH PROGRAM FOR COMPUTATIONAL SIMULATION OF AEROSPACE PROPULSION SYSTEMS  
*Period*    *Obligations*  
09/09/1993-09/06/1994                      FY93: \$24,998                      TOTAL: \$24,998  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
A H NAYFEH                      LERC/C C CHAMIS                      41-Aero Engr  
G J SIMITSES                      ..../L BERKE

**NCA 2-734**                      **University of Cincinnati**                      **6712**  
INVESTIGATION OF ON-LINE VIBRATION PARAMETER ESTIMATION SCHEMES  
*Period*    *Obligations*  
08/03/1992-08/31/1993                      FY93: \$0                      TOTAL: \$40,000  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
R J ALLEMANG                      ARC/L C FREUDINGER                      46-Mech Engr  
S J SHELLEY

**NAG 5-1770**                      **University of Cincinnati**                      **6706**  
VARIABLE EXTINCTION IN HOT STARS WITH CIRCUMSTELLAR DUST  
*Period*    *Obligations*  
09/17/1991-09/30/1993                      FY93: \$0                      TOTAL: \$27,218  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
M L SLTKO                      GSFC/D WEST                      11-Astronomy

**NCC 1-165**                      **University of Cincinnati**                      **6713**  
PARAMETER IDENTIFICATION BY NONLINEAR FILTERING TECHNIQUES FOR HIGH INCIDENCE ANGLE FLIGHT-FDP  
*Period*    *Obligations*  
05/12/1992-09/30/1992                      FY93: \$126                      TOTAL: \$9,875  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
B K WALKER                      LARC/P C MURPHY                      41-Aero Engr

**NASA'S UNIVERSITY PROGRAM**  
**OHIO (Continued)**

**NCC 1-181 University of Cincinnati 6714**  
PARAMETER IDENTIFICATION FOR NONLINEAR AIRCRAFT  
DYNAMICS BY EXTENDED KALMAN FILTER METHODS  
*Period Obligations*  
06/25/1993-06/13/1994 FY93: \$20,000 TOTAL: \$20,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
B K WALKER LARC/P C MURPHY 41-Aero Engr

**NCC 2-669 University of Cincinnati 6715**  
ADVANCED TRAJECTORY ANALYSIS WITH APPLICATION TO AIR  
TRAFFIC CONTROL  
*Period Obligations*  
05/25/1990-12/31/1993 FY93: \$45,000 TOTAL: \$145,581  
*Prin. Invest. NASA Tech. Officer CASE Category*  
G L SLATER ARC/T J DAVIS 41-Aero Engr  
...../H ERZBERGER

**NCC 3-33 University of Cincinnati 6716**  
III-V COMPOUND SEMICONDUCTOR TECHNOLOGY  
*Period Obligations*  
08/02/1983-05/31/1994 FY93: \$30,283 TOTAL: \$844,261  
*Prin. Invest. NASA Tech. Officer CASE Category*  
V J KAPOOR LERC/J POUCH 19-Phys Sci, NEC  
J E DICKMAN ...../R F LEONARD

**NCC 3-237 University of Cincinnati 6717**  
NUMERICAL SIMULATION OF PROPULSION SYSTEM'S TRANSI ENT  
RESPONSE TO VARI IN THE COMPRESS SYS AND ENVIR  
*Period Obligations*  
12/11/1991-12/31/1993 FY93: \$50,000 TOTAL: \$100,778  
*Prin. Invest. NASA Tech. Officer CASE Category*  
A HAMED LERC/L D NICHOLS 41-Aero Engr

**NCC 3-252 University of Cincinnati 6718**  
DESIGN AND DEVELOPMENT OF AN INTEGRATED OEIC RECEIVE R  
FOR A PHASED ARRAY ANTENNA  
*Period Obligations*  
02/28/1992-03/03/1994 FY93: \$69,723 TOTAL: \$124,723  
*Prin. Invest. NASA Tech. Officer CASE Category*  
K P ROENKER LERC/R R KUNATH 45-Elec Engr

**NCC 3-282 University of Cincinnati 6719**  
NON-INTRUSIVE SPRAY COMBUSTION MEASUREMENTS  
*Period Obligations*  
11/19/1992-10/31/1993 FY93: \$26,856 TOTAL: \$26,856  
*Prin. Invest. NASA Tech. Officer CASE Category*  
S JENG LERC/D L BULZAN 41-Aero Engr

**NCC 3-308 University of Cincinnati 6720**  
ARTIFICIAL NEURAL NETWORK BASED MODELS FOR SSME SE NSOR  
VALIDATION  
*Period Obligations*  
06/14/1993-11/09/1993 FY93: \$9,551 TOTAL: \$9,551  
*Prin. Invest. NASA Tech. Officer CASE Category*  
P DHAWAN LERC/J F ZAKRAJSEK 49-Engr, NEC

**NGT 00-050-416 University of Cincinnati 6721**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
07/18/1989-08/31/1993 FY93: \$0 TOTAL: \$62,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
K N GHIA HQ/F C OWENS 49-Engr, NEC

**NGT 00-050-492 University of Cincinnati 6722**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
08/03/1989-06/30/1992 FY93: \$0 TOTAL: \$62,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
V J KAPOOR HQ/F C OWENS 45-Elec Engr

**NGT 00-050-712 University of Cincinnati 6723**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
06/13/1991-06/30/1994 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
N GAYARAMAN HQ/F C OWENS 47-Materials Engr

**NGT 00-050-982 University of Cincinnati 6724**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
08/11/1992-06/30/1994 FY93: \$22,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R Y LIN LERC/F MONTEGANI 47-Materials Engr

**NGT 00-070-151 University of Cincinnati 6725**  
NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
MINORITY FOCUS PROGRAM  
*Period Obligations*  
09/06/1989-01/31/1993 FY93: \$0 TOTAL: \$62,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
S G RUBIN HQ/F C OWENS 45-Elec Engr

**NGT 00-070-168 University of Cincinnati 6726**  
NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
MINORITY FOCUS PROGRAM  
*Period Obligations*  
08/06/1990-05/31/1994 FY93: \$22,000 TOTAL: \$88,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
S G RUBIN HQ/F C OWENS 45-Elec Engr

**NGT 00-070-278 University of Cincinnati 6727**  
NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
MINORITY FOCUS PROGRAM  
*Period Obligations*  
08/11/1992-08/31/1994 FY93: \$22,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
S G RUBIN LERC/F MONTEGANI 42-Astro Engr

**NAG 1-1327 University of Dayton 6728**  
DETERMINATION OF OPERATIONAL AND SUPPORT REQUIRE-  
MENTS AND COSTS DURING CONCEPTUAL DESIGN OF SPACE  
*Period Obligations*  
07/26/1991-06/30/1994 FY93: \$59,330 TOTAL: \$138,696  
*Prin. Invest. NASA Tech. Officer CASE Category*  
C E EBELING LARC/W D MORRIS 49-Engr, NEC

**NASA'S UNIVERSITY PROGRAM**  
**OHIO (Continued)**

**NAG 3-1391 University of Dayton 6729**  
EVAPORATION FROM A MENISCUS WITHIN A CAPILLARY TUB E IN MICROGRAVITY  
*Period Obligations*  
12/23/1992-11/30/1993 FY93: \$131,085 TOTAL: \$131,085  
*Prin. Invest. NASA Tech. Officer CASE Category*  
K P HALLINAN LERC/J A SALEMAN 19-Phys Sci, NEC  
J ERVIN

**NAG 9-600 University of Dayton 6730**  
COLLECTION AND PROCESSING OF DAMAGE TOLERANT DESIG N DATA FOR NON-AEROSPACE STRUCTURAL MATERIALS  
*Period Obligations*  
06/01/1992-06/01/1994 FY93: \$50,000 TOTAL: \$100,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J P GALLAGHER JSC/R G FORMAN 46-Mech Engr

**NAS 5-31661 University of Dayton 6731**  
VERTIFICATION AND ANALYSIS OF UPPER ATMOSPHERIC DATA  
*Period Obligations*  
11/01/1989-10/31/1993 FY93: \$97,310 TOTAL: \$499,922  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J K LUERS GSFC/F J SCHMIDLIN 31-Atmos Sci

**NGT 00-051-089 University of Dayton 6732**  
GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
06/02/1993-06/02/1994 FY93: \$20,250 TOTAL: \$20,250  
*Prin. Invest. NASA Tech. Officer CASE Category*  
K P HALLINAN HQ/D A HOLLAND 46-Mech Engr

**NAG 3-72 University of Toledo 6733**  
NUMERICAL SIMULATION OF INTERNAL HEAT TRANSFERS PHENOMENA OCCURRING DURING DEICING OF AIRCRAFT COMPO  
*Period Obligations*  
05/06/1980-12/31/1993 FY93: \$81,078 TOTAL: \$505,578  
*Prin. Invest. NASA Tech. Officer CASE Category*  
K J DEWITT LERC/M VARGAS 41-Aero Engr  
T G KEITH ....J J REINMANN

**NAG 3-157 University of Toledo 6734**  
INTERFERENCE SUSCEPTIBILITY OF DIGITAL TV SYSTEMS  
*Period Obligations*  
01/08/1981-12/13/1993 FY93: \$0 TOTAL: \$705,229  
*Prin. Invest. NASA Tech. Officer CASE Category*  
S C KWATRA LERC/G H STEVENS 22-Computer Science

**NAG 3-577 University of Toledo 6735**  
FLUID PHYSICS PHENOMENA OF RESISTOJET THRUSTERS  
*Period Obligations*  
10/02/1984-12/31/1993 FY93: \$25,000 TOTAL: \$246,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
K J DEWITT LERC/W E MORREN 19-Phys Sci, NEC  
T G KEITH ....P F PENKO

**NAG 3-742 University of Toledo 6736**  
OPTIMIZATION OF PROPPAN BLADES WITH DYNAMIC CONSTRAINTS  
*Period Obligations*  
08/25/1986-12/31/1993 FY93: \$0 TOTAL: \$376,603  
*Prin. Invest. NASA Tech. Officer CASE Category*  
T G KEITH LERC/G L STEFKO 41-Aero Engr  
D V MURTHY ....L J KIRALY

**NAG 3-799 University of Toledo 6737**  
A DIGITALLY IMPLEMENTED MULTICARRIER DEMODULATOR  
*Period Obligations*  
05/17/1987-12/31/1993 FY93: \$75,000 TOTAL: \$421,154  
*Prin. Invest. NASA Tech. Officer CASE Category*  
S C KWATRA LERC/J M BUDINGER 45-Elec Engr  
M M JAMALI ....J L HARROLD

**NAG 3-975 University of Toledo 6738**  
EFFICIENT PARTITIONING AND ASSIGNMENT OF PROGRAMS FO R PARALLEL EXECUTION  
*Period Obligations*  
01/30/1989-09/30/1992 FY93: \$22,252 TOTAL: \$127,750  
*Prin. Invest. NASA Tech. Officer CASE Category*  
H M STANDLEY LERC/L J KIRALY 41-Aero Engr  
....D C JANETZKE

**NAG 3-1068 University of Toledo 6739**  
ADV MOD FOR AEROELAST ANALY OF PROP SYS  
*Period Obligations*  
08/22/1989-12/09/1993 FY93: \$80,750 TOTAL: \$336,629  
*Prin. Invest. NASA Tech. Officer CASE Category*  
T G KEITH LERC/G L STEFKO 41-Aero Engr  
A J MAHAJAN ....L J KIRALY

**NAG 3-1102 University of Toledo 6740**  
A STUDY OF DC-DC CONVERTERS WITH MCTS FOR ARCJET P OWER SUPPLIES  
*Period Obligations*  
12/08/1989-12/31/1992 FY93: \$1,001 TOTAL: \$108,622  
*Prin. Invest. NASA Tech. Officer CASE Category*  
T A STUART LERC/R P GRUBER 45-Elec Engr  
R J KING

**NAG 3-1137 University of Toledo 6741**  
AEROELASTIC STABILITY AND RESPONSE OF ROTATING STRUC TURES  
*Period Obligations*  
01/29/1990-11/30/1993 FY93: \$78,000 TOTAL: \$312,921  
*Prin. Invest. NASA Tech. Officer CASE Category*  
T G KEITH JR LERC/ 41-Aero Engr  
T S REDDY  
M A BAKHLE

**NAG 3-1165 University of Toledo 6742**  
TURBOMACHINERY DESIGN AND PERFORMANCE ANALYSIS  
*Period Obligations*  
04/13/1990-02/04/1994 FY93: \$85,749 TOTAL: \$348,509  
*Prin. Invest. NASA Tech. Officer CASE Category*  
K J DEWITT LERC/J K LYTLE 42-Astro Engr

**NAG 3-1219 University of Toledo 6743**  
COMPUTATION OF REACTING FLOWS IN COMBUSTION PROCES S  
*Period Obligations*  
12/03/1990-12/31/1993 FY93: \$78,000 TOTAL: \$223,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
T G KEITH LERC/R W CLAUS 41-Aero Engr  
....E J MULARZ

**NASA'S UNIVERSITY PROGRAM**  
**OHIO (Continued)**

**NAG 3-1226 University of Toledo 6744**  
 EXPLORATORY DEVELOPMENT OF PEEL-OFF GAAS MODFET PROCESS TECHNOLOGY  
*Period Obligations*  
 11/29/1990-08/31/1992 FY93: \$940 TOTAL: \$50,915  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 E D SMITH LERC/S A ALTEROVITZ 45-Elec Engr

**NAG 3-1230 University of Toledo 6745**  
 EULER/NAVIER STROKES SOLVERS APPLIED FOR ADVANCED PROPELLER CONFIGERATIONS  
*Period Obligations*  
 12/17/1990-11/30/1993 FY93: \$67,500 TOTAL: \$194,494  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 T G KEITH LERC/G L STEFKO 41-Aero Engr  
 R SRIVASTAVA ....L J KIRALY

**NAG 3-1234 University of Toledo 6746**  
 AEROELASTIC ANALYSIS USING VARIOUS CFD MODELS / 52 30  
*Period Obligations*  
 01/07/1991-11/30/1993 FY93: \$66,500 TOTAL: \$188,104  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 T G KEITH LERC/A P KURKOU 41-Aero Engr  
 M A BAKHLE ....L J KIRALY

**NAG 3-1264 University of Toledo 6747**  
 COMPUTATIONAL SIMULATION OF COMPOSITE MATERIAL BEHAVIOR  
*Period Obligations*  
 03/26/1991-11/30/1993 FY93: \$131,498 TOTAL: \$357,498  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S K MITAL LERC/P L MURTHY 49-Engr, NEC  
 ....C C CHAMIS

**NAG 3-1276 University of Toledo 6748**  
 EXPERIMENTAL AND THEORETICAL INVESTIGATION OF ICING IMPACT MEASUREMENT AND PHENOMENA  
*Period Obligations*  
 05/15/1991-09/30/1993 FY93: \$0 TOTAL: \$40,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 K C MASIULANIEC LERC/T H BOND 41-Aero Engr  
 K J DEWITT

**NAG 3-1307 University of Toledo 6749**  
 DETAILED AND REDUCED HYDROCARBON OXIDATION CHEMISTRY  
*Period Obligations*  
 11/19/1991-11/14/1993 FY93: \$110,583 TOTAL: \$190,255  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 K J DEWITT LERC/M J RABINOWITZ 12-Chemistry  
 ....E A LEZBERG

**NAG 3-1323 University of Toledo 6750**  
 COMPRESSION OF STEREO IMAGES  
*Period Obligations*  
 01/28/1992-01/12/1993 FY93: \$0 TOTAL: \$40,870  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 E SALARI LERC/W A WHYTE 45-Elec Engr  
 ....D R GLOVER

**NAG 3-1338 University of Toledo 6751**  
 MIXING ENHANCEMENT OF A FREE JET BY IMPARTING SWIRL  
*Period Obligations*  
 03/20/1992-11/30/1993 FY93: \$73,500 TOTAL: \$115,135  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 K J DEWITT LERC/K Q ZAMAN 46-Mech Engr  
 J PANDA ....J M ABBOTT

**NAG 3-1370 University of Toledo 6752**  
 HYDRODYNAMIC ANALYSES AND EVALUATION OF NEW FLUID FILM BEARING CONCEPTS  
*Period Obligations*  
 10/06/1992-09/30/1993 FY93: \$97,000 TOTAL: \$102,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 T G KEITH LERC/J F WALKER 46-Mech Engr

**NAG 3-1422 University of Toledo 6753**  
 PROCESS OPTIMIZATION VIA SOFT COMPUTING  
*Period Obligations*  
 12/11/1992-11/14/1993 FY93: \$20,000 TOTAL: \$20,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 K CIOS LERC/A VARRY 47-Materials Engr  
 ....L BERKE

**NAG 3-1449 University of Toledo 6754**  
 AEROELASTIC ANALYSIS OF TURBOMACHINERY FOR SPACE PROPULSION  
*Period Obligations*  
 01/26/1993-01/12/1994 FY93: \$80,370 TOTAL: \$80,370  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 T G KEITH JR. LERC/G L STEFKO 41-Aero Engr

**NAG 3-1466 University of Toledo 6755**  
 DESIGN AND MODELING OF A HIGH EFFICIENCY SILICON SOLAR CELL WITH BURIED TRAP LEVEL  
*Period Obligations*  
 02/25/1993-11/09/1993 FY93: \$50,000 TOTAL: \$50,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 T G KEITH LERC/I WEINBERG 46-Mech Engr  
 ....D J FLOOD

**NAG 3-1501 University of Toledo 6756**  
 OSCILLATORY/CHAOTIC THERMOCAPILLARY FLOW INDUCED BY RADIANT HEATING  
*Period Obligations*  
 05/20/1993-09/30/1993 FY93: \$16,135 TOTAL: \$16,135  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 K J DEWITT LERC/R L THOMPSON 19-Phys Sci, NEC

**NAG 5-954 University of Toledo 6757**  
 RESEARCH RELATIVE AND INTERACTING OF SEVERAL SELECTED BINARY STAR SYSTEMS  
*Period Obligations*  
 09/01/1987-11/14/1992 FY93: \$0 TOTAL: \$48,724  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 B W BOPP GSFC/D WEST 11-Astronomy  
 S B PARSONS

**NASA'S UNIVERSITY PROGRAM**  
**OHIO (Continued)**

**NAGW 2337**                      **University of Toledo**                      **6758**  
 ANNAUL CYCLES OF VOLATILES ON MARS  
*Period*    *Obligations*  
 05/07/1991-12/31/1992                      FY93: \$0                      TOTAL: \$59,702  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 P B JAMES                      HQ/J BERGSTRAHL                      11-Astronomy

**NCC 3-120**                      **University of Toledo**                      **6765**  
 DEVELOPMENT AND APPLICATION OF VISCOPLASTIC MODELS I N  
 NONLINEAR STRUCTURAL ANALYSIS  
*Period*    *Obligations*  
 12/12/1988-01/24/1994                      FY93: \$80,207                      TOTAL: \$480,207  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 T G KEITH                      LERC/S M ARNOLD                      42-Astro Engr  
    .... /R E KIELB

**NAGW 2457**                      **University of Toledo**                      **6759**  
 OSCILLATOR STRENGTHS FOR ULTRAVIOLET ATOMIC TRANSI  
 TIONS  
*Period*    *Obligations*  
 04/11/1991-02/28/1993                      FY93: \$0                      TOTAL: \$161,600  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 S R FEDERMAN                      HQ/D HUENEMOERDER                      11-Astronomy

**NCC 3-126**                      **University of Toledo**                      **6766**  
 MICROSTRIP ANTENNA ARRAYS W/ PARASITIC ELEMENTS  
*Period*    *Obligations*  
 01/30/1989-01/31/1994                      FY93: \$41,799                      TOTAL: \$184,817  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 K F LEE                      LERC/R O LEE                      45-Elec Engr

**NAGW 2794**                      **University of Toledo**                      **6760**  
 PHOTOPHYSICS AND HYDROGEN PROCESSING OF INTERSTELL AR  
 CARBON SOLIDS  
*Period*    *Obligations*  
 12/18/1991-11/30/1993                      FY93: \$60,421                      TOTAL: \$127,298  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 A N WITT                      HQ/L J CAROFF                      11-Astronomy

**NCC 3-171**                      **University of Toledo**                      **6767**  
 RAREFIED FLOW OF GASES IN INTERNAL AND EXTERNAL GE  
 OMETRIES  
*Period*    *Obligations*  
 03/27/1990-11/30/1993                      FY93: \$82,724                      TOTAL: \$261,281  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 K J DEWITT                      LERC/R M STUBBS                      42-Astro Engr  
 C H CHUNG  
 D R JENG

**NAGW 3168**                      **University of Toledo**                      **6761**  
 RADIATIVE TRANSFER ANALYSIS OF DUSTY ASTRONOMICAL  
 SYSTEMS  
*Period*    *Obligations*  
 08/11/1992-04/30/1994                      FY93: \$85,775                      TOTAL: \$162,532  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 A WITT                      HQ/G R RIEGLER                      11-Astronomy

**NCC 3-193**                      **University of Toledo**                      **6768**  
 ADVANCED PROPULSION SYSTEM STUDIES IN HIGH SPEED R  
 ESEARCH  
*Period*    *Obligations*  
 12/19/1990-10/31/1993                      FY93: \$82,556                      TOTAL: \$257,615  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 K J DEWITT                      LERC/L H FISHBACH                      41-Aero Engr

**NAGW 3240**                      **University of Toledo**                      **6762**  
 NAGW-3240/UNIV TOLEDO/ASTRONOMY EDUCATION SYMPOSIU M  
 BASED ON THE UT-SPICA MODEL  
*Period*    *Obligations*  
 10/21/1992-07/31/1993                      FY93: \$5,000                      TOTAL: \$5,000  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 A N WITT                      HQ/L LAPIANA                      11-Astronomy

**NCC 3-196**                      **University of Toledo**                      **6769**  
 AN EXPERIMENTAL STUDY OF LIQUID SHEET FLOW  
*Period*    *Obligations*  
 01/15/1991-10/06/1992                      FY93: \$0                      TOTAL: \$23,868  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 A A AFJEH                      LERC/D L CHUBB                      46-Mech Engr  
    .... /A J JUHASZ

**NCA 2-645**                      **University of Toledo**                      **6763**  
 ULTRAVIOLET SPECTRA OF HOT STARS  
*Period*    *Obligations*  
 08/01/1991-02/14/1994                      FY93: \$1,980                      TOTAL: \$8,570  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 L S ANDERSON                      ARC/E ERICKSON                      11-Astronomy

**NCC 3-207**                      **University of Toledo**                      **6770**  
 NUMERICAL SIMULATION OF A HIGH BY-PASS FAN IN A JE T  
 ENGINE  
*Period*    *Obligations*  
 02/15/1991-02/10/1994                      FY93: \$37,807                      TOTAL: \$151,798  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 A A AFJEH                      LERC/L D NICHOLS                      41-Aero Engr

**NCC 3-34**                      **University of Toledo**                      **6764**  
 MASS TRANSPORT PHENOMENA BETWEEN BUBBLES AND  
 DISSOLVED GASES IN LIQ UNDER REDUCED GRAVITY  
 CONDITIONS  
*Period*    *Obligations*  
 10/24/1983-08/31/1993                      FY93: \$0                      TOTAL: \$478,391  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 K J DEWITT                      LERC/A T CHAI                      49-Engr, NEC  
 C N YUNG

**NCC 3-229**                      **University of Toledo**                      **6771**  
 LOW REYNOLDS NUM MULTI-TIME-SCALE TURB MODEL AND ITS  
 APPL TO UNSTEADY AND TRNSITIONARY TURBULENT FLOWS  
*Period*    *Obligations*  
 08/29/1991-12/31/1993                      FY93: \$93,121                      TOTAL: \$207,121  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 K J DEWITT                      LERC/R M STUBBS                      42-Astro Engr  
 S W KIM                      .... /J M ABBOTT

# NASA'S UNIVERSITY PROGRAM OHIO (Continued)

**NCC 3-247 University of Toledo 6772**  
AEROELASTIC ANALYSIS OF TURBOMACHINERY FOR SPACE PROPULSION  
Period Obligations  
01/27/1992-01/12/1993 FY93: \$0 TOTAL: \$78,000  
Prin. Invest. NASA Tech. Officer CASE Category  
T G KEITH LERC/G L STEFKO 41-Aero Engr  
D V MURTHY ....L J KIRALY

**NCC 3-248 University of Toledo 6773**  
DEVELOPMENT OF COMPUTATIONAL TECHNIQUES FOR THE NONLINEAR ANALYSIS OF COMP STRUCTURES AT HI TEMP  
Period Obligations  
01/16/1992-12/31/1993 FY93: \$60,000 TOTAL: \$123,000  
Prin. Invest. NASA Tech. Officer CASE Category  
T WILT LERC/S M ARNOLD 41-Aero Engr

**NCC 3-260 University of Toledo 6774**  
DEVELOPMENT OF SILICON-GERMANIUM TECHNOLOGY FOR MICROWAVE SENSING APPLICATIONS  
Period Obligations  
03/27/1992-10/31/1993 FY93: \$92,284 TOTAL: \$132,284  
Prin. Invest. NASA Tech. Officer CASE Category  
K J DE WITT LERC/R A MENU 45-Elec Engr  
P G YOUNG ....S ALTEROVITZ

**NCC 3-279 University of Toledo 6775**  
ACCELERATED TESTING TECHNIQUES FOR SPACE MECHANISMS  
Period Obligations  
10/12/1992-09/30/1993 FY93: \$25,000 TOTAL: \$25,000  
Prin. Invest. NASA Tech. Officer CASE Category  
T G KEITH LERC/R L FUSARO 46-Mech Engr  
....D A ROHN

**NCC 3-288 University of Toledo 6776**  
ENVIRONMENTAL EFFECTS ON BOUNDARY LAYERS TRANSITION  
Period Obligations  
12/11/1992-12/31/1993 FY93: \$67,550 TOTAL: \$67,550  
Prin. Invest. NASA Tech. Officer CASE Category  
K J DEWITT LERC/F F SIMON 46-Mech Engr  
K H SOHN

**NCC 3-291 University of Toledo 6777**  
EFFECT OF CAVITATION ON JOURNAL BEARING DYNAMIC CHARACTERISTICS  
Period Obligations  
12/20/1992-12/20/1993 FY93: \$68,000 TOTAL: \$68,000  
Prin. Invest. NASA Tech. Officer CASE Category  
T G KEITH LERC/D E BREWE 46-Mech Engr  
....G A BOBULA

**NGT 00-050-371 University of Toledo 6778**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
Period Obligations  
08/04/1988-07/31/1992 FY93: \$1,316 TOTAL: \$78,684  
Prin. Invest. NASA Tech. Officer CASE Category  
K J DEWITT HQ/F C OWENS 43-Chem Engr  
D O OLIVER

**NGT 00-050-944 University of Toledo 6779**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
Period Obligations  
08/07/1992-07/01/1992 FY93: \$22,000 TOTAL: \$0  
Prin. Invest. NASA Tech. Officer CASE Category  
K J DEWITT LERC/F MONTEGANI 46-Mech Engr

**NCC 3-281 Wilberforce University 6780**  
NASA/WILBERFORCE COLLABORATIVE PROGRAM RESEARCH INSTITUTE FOR TECHNICAL CAREERS  
Period Obligations  
10/21/1992-10/31/1993 FY93: \$427,632 TOTAL: \$427,632  
Prin. Invest. NASA Tech. Officer CASE Category  
R L GLENN LERC/A F HEPP 19-Phys Sci, NEC  
E ASIKELE ....J M EARLS

**NAG 3-793 Wittenberg University 6781**  
RADIATION EFFECTS ON POWER TRANSISTOR PERFORMANCES  
Period Obligations  
03/23/1987-06/15/1993 FY93: \$24,981 TOTAL: \$362,290  
Prin. Invest. NASA Tech. Officer CASE Category  
A J FRASCA LERC/G E SCHWARZE 13-Physics

**NAG 3-1233 Wright State University 6782**  
THERMODYNAMIC STUDIES FOR Ti-AL ALLOYS CONTAINING DISSOLVED OXYGEN / 5160  
Period Obligations  
01/03/1991-12/31/1993 FY93: \$0 TOTAL: \$69,062  
Prin. Invest. NASA Tech. Officer CASE Category  
G M MEHROTRA LERC/N S JACOBSON 47-Materials Engr  
....A K MISRA

**NAG 3-1489 Wright State University 6783**  
RELIABILITY BASED STRUCTURAL OPTIMIZATION  
Period Obligations  
04/16/1993-04/14/1994 FY93: \$50,000 TOTAL: \$50,000  
Prin. Invest. NASA Tech. Officer CASE Category  
R GRANDHI LERC/D A HOPKINS 46-Mech Engr

**NGT36-24790 Wright State University 6784**  
AEROSPACE MEDICINE RESIDENCY PROGRAM  
Period Obligations  
07/01/1978-12/31/1993 FY93: \$555,183 TOTAL: \$5,840,242  
Prin. Invest. NASA Tech. Officer CASE Category  
S MOHLER HQ/F D EVANS 59-Life Sci, NEC  
....A E NICOGOSSIAN

## OKLAHOMA

**NASW 4516 Oklahoma State University 6785**  
NASW-4516/OKLAHOMA STATE UNIVERSITY OPERATION AND MANAGEMENT OF THE NASA AEROSPACE EDUCATION SERVICES PROGRAM  
Period Obligations  
07/11/1990-03/31/1994 FY93: \$6,597,620 TOTAL: \$18,818,442  
Prin. Invest. NASA Tech. Officer CASE Category  
K WIGGINS HQ/L B BILBROUGH 99-Multi-Discip  
N EHRlich

**NCCW 5 Oklahoma State University 6786**  
NASA'S TEACHER IN SPACE PROJECT  
Period Obligations  
10/16/1985-11/30/1993 FY93: \$483,120 TOTAL: \$4,201,425  
Prin. Invest. NASA Tech. Officer CASE Category  
K WIGGINS HQ/L BILBROUGH 99-Multi-Discip

**NASA'S UNIVERSITY PROGRAM**  
**OKLAHOMA (Continued)**

**NGT 00-050-766 Oklahoma State University 6787**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 05/10/1991-06/30/1994 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 K PERRY HQ/F C OWENS 42-Astro Engr

**NGT 00-050-767 Oklahoma State University 6788**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 06/13/1991-05/30/1994 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 L BARNES HQ/F C OWENS 42-Astro Engr

**NAG 1-1054 University of Oklahoma - Norman 6789**  
 NONDESTRUCTIVE CHARACTERIZATION OF CARBON-CARBON COMPOSITES  
*Period Obligations*  
 08/31/1989-06/30/1992 FY93: \$1 TOTAL: \$59,841  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R A KLINE LARC/E I MADARAS 19-Phys Sci, NEC  
 A J STRIZ

**NAG 1-1375 University of Oklahoma - Norman 6790**  
 THE NONDESTRUCTIVE EVALUATION OF CARBON-CARBON COMPOSITES: EFFECT OF THERMAL DEGRADATION ON MECH.BE  
*Period Obligations*  
 02/14/1992-02/11/1994 FY93: \$32,539 TOTAL: \$61,939  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R A KLINE LARC/P H JOHNSTON 19-Phys Sci, NEC  
 A G STRIZ

**NAG 5-1379 University of Oklahoma - Norman 6791**  
 LARGE EDDY SIMULATION OF THE FIFE ATMOSPHERE  
*Period Obligations*  
 04/24/1990-05/31/1994 FY93: \$63,900 TOTAL: \$202,447  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 T GAL-CHEN GSFC/F G HALL 31-Atmos Sci

**NAG 5-1528 University of Oklahoma - Norman 6792**  
 EXPLICIT GROWTH OF ICE PARTICLES IN NUMERICAL MODE LS OF CUMULUS CLOUDS  
*Period Obligations*  
 04/09/1991-04/14/1994 FY93: \$50,000 TOTAL: \$140,989  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 Y L KOGAN GSFC/J SIMPSON 31-Atmos Sci

**NAG 8-137 University of Oklahoma - Norman 6793**  
 A DECISION SUPPORT SYS: TEM FOR TOLERANCE ALLOCA TION  
*Period Obligations*  
 08/21/1989-09/04/1993 FY93: \$13,787 TOTAL: \$172,250  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 P S PULAT MSFC/K R FERNANDEZ 46-Mech Engr  
 S RAMAN ....A GILLIS

**NAG 8-922 University of Oklahoma - Norman 6794**  
 ANALYSIS OF SURFACE ENERGY AND LAND-ATMOSPHERE WATER BUDGET MEASUREMENTS FOR THE CAPE FIEL PROGRA  
*Period Obligations*  
 07/06/1992-07/31/1994 FY93: \$44,125 TOTAL: \$87,725  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 C E DUCHON MSFC/S J GOODMAN 31-Atmos Sci

**NAGW 2765 University of Oklahoma - Norman 6795**  
 THE APPLICATION OF STABLE ISOTOPES FOR DETERMINING THE ORIGIN(S) OF INDIVIDUAL AMINO ACID ENCNTIOME  
*Period Obligations*  
 11/08/1991-05/31/1993 FY93: \$0 TOTAL: \$85,079  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M H ENGEL HQ/J D RUMMEL 12-Chemistry

**NAGW 2999 University of Oklahoma - Norman 6796**  
 QUANTATIVE ANALYSIS OF SUPERNOVA ULTRAVIOLET SPECT RA  
*Period Obligations*  
 03/10/1991-02/28/1994 FY93: \$65,000 TOTAL: \$100,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D R BRANCH HQ/R V STACHNIK 11-Astronomy  
 ....E J WEILER

**NAGW 3031 University of Oklahoma - Norman 6797**  
 NAGW-3031/UNIV OKLAHOMA/STABILITY OF EARLY MARTIAN CLIMATES: CONSEQUENCES FOR VOLATILE DISTRIBUTION  
*Period Obligations*  
 04/06/1992-12/31/1993 FY93: \$35,000 TOTAL: \$70,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S POSTAWKO HQ/H C BRINTON 32-Geological Sci

**NAGW 3232 University of Oklahoma - Norman 6798**  
 NAGW-3232/UNIV OKLAHOMA/ASTRONOMY INITIATIVE AT IRVING MIDDLE SCHOOL  
*Period Obligations*  
 11/02/1992-07/31/1993 FY93: \$5,000 TOTAL: \$5,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 P D BRANCH HQ/L LAPIANA 11-Astronomy  
 ....G P NEWTON

**NAS 3-26957 University of Oklahoma - Norman 6799**  
 ACTS PROPAGATION EXPERIMENTS  
*Period Obligations*  
 05/13/1993-10/31/1995 FY93: \$90,000 TOTAL: \$90,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R K CRANE LERC/R J GUNDERMAN 41-Aero Engr

**NGT 00-040-052 University of Oklahoma - Norman 6800**  
 NATIONAL SPACE GRANT COLLEGE AND FELLOWSHIP PROGRA M  
*Period Obligations*  
 09/03/1991-02/28/1994 FY93: \$173,000 TOTAL: \$493,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 K L HOVING HQ/E T SCHWARTZ 99-Multi-Discip

**NGT 00-050-412 University of Oklahoma - Norman 6801**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 09/06/1989-08/14/1992 FY93: \$0 TOTAL: \$50,998  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R A KLINE HQ/F C OWENS 46-Mech Engr

**NGT 00-051-110 University of Oklahoma - Norman 6802**  
 GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 06/22/1993-07/31/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R A KLINE LARC/E PRIOR 46-Mech Engr

# NASA'S UNIVERSITY PROGRAM OREGON

## OREGON

**NCC 2-811 Oregon Graduate Center 6803**  
PERCEPTION-BASED SENSOR FUSION FOR AN AUGMENTED VI SION  
SYSTEM

Period	Obligations	
07/16/1993-08/31/1994	FY93: \$191,724	TOTAL: \$191,724
Prin. Invest.	NASA Tech. Officer	CASE Category
M PAVEL	ARC/A J AHUMADA	69-Psych, NEC
	....C H NULL	

**NAG 2-803 Oregon Health Sciences University 6804**  
A GRAVITY-SENSITIVE PERIOD DURING FROG OOCYTE MATU  
RATION

Period	Obligations	
08/25/1992-08/31/1993	FY93: \$0	TOTAL: \$33,950
Prin. Invest.	NASA Tech. Officer	CASE Category
M V DANILCHIK	ARC/C E WADE	51-Biological Sci
	....R GRYMES	

**NAG 1-1081 Oregon State University 6805**  
NONLINEAR STABILITY AND CONTROL STUDY OF HIGHLY  
MANEUVERABLE HIGH-PERFORMANCE AIRCRAFT

Period	Obligations	
01/19/1990-06/30/1993	FY93: \$29,640	TOTAL: \$126,456
Prin. Invest.	NASA Tech. Officer	CASE Category
R R MOHLER	LARC/A J OSTROFF	41-Aero Engr

**NAG 1-1234 Oregon State University 6806**  
FIRE 2 SATELLITE OBSERVATIONS OF CIRRUS

Period	Obligations	
02/22/1991-03/31/1994	FY93: \$55,000	TOTAL: \$203,000
Prin. Invest.	NASA Tech. Officer	CASE Category
J A COAKLEY	LARC/T OWENS	31-Atmos Sci

**NAG 1-1263 Oregon State University 6807**  
CHARACTERIZATION OF CLOUDS AND ANISOTROPY OF EMITTED  
AND REFLECTED RADIANCES AS PART OF CERES

Period	Obligations	
05/07/1991-04/30/1994	FY93: \$0	TOTAL: \$125,000
Prin. Invest.	NASA Tech. Officer	CASE Category
J A COAKLEY	LARC/J W YOUNGBLOOD	31-Atmos Sci
	....B A WIELICKI	

**NAG 2-630 Oregon State University 6808**  
IMPROVING SEARCH-BASED AI SYSTEMS

Period	Obligations	
03/28/1990-12/31/1992	FY93: \$0	TOTAL: \$227,687
Prin. Invest.	NASA Tech. Officer	CASE Category
T G DIETRICH	ARC/P E FRIEDLAND	22-Computer Science
	....P D LAIRD	

**NAG 2-719 Oregon State University 6809**  
NITROGEN AND CARBON CYCLING ALONG THE OREGON TRAN  
SECT

Period	Obligations	
07/01/1991-03/31/1993	FY93: \$0	TOTAL: \$112,707
Prin. Invest.	NASA Tech. Officer	CASE Category
D MYROLD	ARC/D L PETERSON	51-Biological Sci
	....P A MATSON	

**NAG 5-2013 Oregon State University 6810**  
MODELING AND VISUALIZATION OF SOIL MOISTURE REDIST  
RIBUTION

Period	Obligations	
07/01/1992-06/30/1993	FY93: \$0	TOTAL: \$12,000
Prin. Invest.	NASA Tech. Officer	CASE Category
R CUENCA	GSFC/E T ENGMAN	39-Env Sci, NEC

**NAG 5-2300 Oregon State University 6811**  
FLUXES OVER INHOMOGENEOUS SURFACES IN BOREAS

Period	Obligations	
06/30/1993-07/14/1994	FY93: \$15,000	TOTAL: \$15,000
Prin. Invest.	NASA Tech. Officer	CASE Category
L MAHRT	GSFC/F G HALL	39-Env Sci, NEC
	....P SELLERS	

**NAG 5-2301 Oregon State University 6812**  
FROM MICROSCALE TO MESOSCALE: SNOWMELT, SOIL MOIS  
TURE, AND EVAPOTRANSPIRATION FROM DISTRIBUTED. .

Period	Obligations	
06/30/1993-07/14/1994	FY93: \$20,000	TOTAL: \$20,000
Prin. Invest.	NASA Tech. Officer	CASE Category
D MARKS	GSFC/F G HALL	39-Env Sci, NEC
	....P SELLERS	

**NAG 9-63 Oregon State University 6813**  
CHEM STUDIES LUNAR + METOR. SAMPLES

Period	Obligations	
02/01/1983-02/01/1994	FY93: \$0	TOTAL: \$795,164
Prin. Invest.	NASA Tech. Officer	CASE Category
R A SCHMITT	JSC/I D BROWNE	32-Geological Sci
S S HUGHES		

**NAGW 1316 Oregon State University 6814**  
SATELLITE STUDIES OF BIOLOGICAL/PHYSICAL PROCESSES

Period	Obligations	
06/27/1988-11/30/1991	FY93: \$0	TOTAL: \$1,262,811
Prin. Invest.	NASA Tech. Officer	CASE Category
M R ABBOTT	HQ/M R LEWIS	33-Oceanography
	....S W WILSON	

**NAGW 1451 Oregon State University 6815**  
DYNAMICS OF THE ANTARCTIC CIRCUMPOLAR CURRENT

Period	Obligations	
09/29/1988-12/31/1991	FY93: \$0	TOTAL: \$527,049
Prin. Invest.	NASA Tech. Officer	CASE Category
J G RICHMAN	HQ/G S LAGERLOEF	33-Oceanography
	....W S WILSON	

**NAGW 1717 Oregon State University 6816**  
ESTIMATING MAJOR ECOSYSTEM FLUXES ACROSS THE OREGON  
TRANSECT

Period	Obligations	
06/02/1989-09/30/1993	FY93: \$30,001	TOTAL: \$451,574
Prin. Invest.	NASA Tech. Officer	CASE Category
R H WARING	HQ/D E WICKLAND	39-Env Sci, NEC
S W RUNNING	....T J PIEPER	
D L PETERSON		



**NASA'S UNIVERSITY PROGRAM**  
**OREGON (Continued)**

**NAGW 1883 Oregon State University 6817**  
 SATELLITE ESTIMATES OF FRESHWATER AND LATENT HEAT FLUXES  
*Period Obligations*  
 01/02/1990-12/31/1992 FY93: \$0 TOTAL: \$845,766  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D B CHELTON HQ/G S LAGERLOEF 33-Oceanography  
 ....W S WILSON

**NAGW 2109 Oregon State University 6818**  
 INVESTIGATIONS OF TECHNIQUES APPLIED TO HYDRODYNAMIC INTERPRETATIONS OF FLOODS  
*Period Obligations*  
 05/08/1990-09/30/1991 FY93: \$0 TOTAL: \$50,487  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 P KOMAR HQ/T A MAXWELL 32-Geological Sci

**NAGW 2339 Oregon State University 6819**  
 MODIS ALGORITHM DEVELOPMENT AND DATA VISUALIZATION USING ACTS  
*Period Obligations*  
 02/22/1991-09/30/1991 FY93: \$0 TOTAL: \$39,529  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M R ABBOTT HQ/D A OLMSTEAD 99-Multi-Discip

**NAGW 2445 Oregon State University 6820**  
 RESEARCH OF THE ATMOSPHERE OF MARS  
*Period Obligations*  
 04/02/1991-10/31/1993 FY93: \$0 TOTAL: \$236,922  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J R BARNES HQ/W QUAIDE 11-Astronomy

**NAGW 2454 Oregon State University 6821**  
 COUPLED ATMOSPHERE/OCEAN PROCESSES AND PRIMARY PRODUCTION IN THE SOUTHERN OCEAN  
*Period Obligations*  
 04/19/1991-12/31/1993 FY93: \$954,000 TOTAL: \$3,598,051  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M R ABBOTT HQ/B G MITCHELL 33-Oceanography  
 ....W S WILSON

**NAGW 2475 Oregon State University 6822**  
 SATELLITE ESTIMATED BIOLOGICAL PHYSICAL COUPLING IN EASTERN BOUNDARY CURRENTS  
*Period Obligations*  
 09/01/1991-08/31/1993 FY93: \$0 TOTAL: \$282,191  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 P T STRUB HQ/D ADAMEC 39-Env Sci, NEC  
 ....R A SCHIFFER

**NAGW 2707 Oregon State University 6823**  
 COLLABORATIVE RESEARCH: SCALING THEORIES OF HYDROLOGY, HYDRAULICS, AND GEOMETRY OF RIVER NETWORKS  
*Period Obligations*  
 09/19/1991-12/31/1993 FY93: \$45,000 TOTAL: \$105,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 E C WEYINIRE HQ/M Y WEI 39-Env Sci, NEC  
 V J GUPTA ....J S THEON

**NAGW 2715 Oregon State University 6824**  
 NAGW-2715/OREGON STATE UNIV/TOPEX/POSEIDON TIDES  
*Period Obligations*  
 09/24/1991-05/31/1994 FY93: \$136,844 TOTAL: \$401,020  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A F BENNETT HQ/D ADAMEO 33-Oceanography  
 ....R A SCHIFFER

**NAGW 2833 Oregon State University 6825**  
 CHEMISTRY OF HYDROTHERMAL PROCESSES AND ORIGIN OF LIFE  
*Period Obligations*  
 02/13/1992-01/31/1994 FY93: \$109,200 TOTAL: \$209,200  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 B R SIMONEIT HQ/J D RUMMEL 12-Chemistry

**NAGW 3062 Oregon State University 6826**  
 DEVELOPMENT AND ANALYSIS OF A MODEL FUNCTION FOR THE ERS-1 C-BAND SCATTEROMETER USING OPERATIONAL  
*Period Obligations*  
 05/04/1992-01/31/1994 FY93: \$129,693 TOTAL: \$259,391  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M H FREILICH HQ/D ADAMEC 32-Geological Sci  
 ....R A SCHIFFER

**NAGW 3217 Oregon State University 6827**  
 NAGW-3217/OREGON STATE UNIV/MUD VOLCANOES ON EARTH AND MARS  
*Period Obligations*  
 09/29/1992-09/30/1993 FY93: \$29,994 TOTAL: \$29,994  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 P D KOMAR HQ/J M BOYCE 32-Geological Sci

**NAGW 3305 Oregon State University 6828**  
 NAGW-3305/OREGON STATE UNIV/INVESTIGATIONS OF SCATTERING MECHANISMS AND CENTIMETRIC SURFACE ROUGHNESS  
*Period Obligations*  
 12/31/1992-12/31/1993 FY93: \$77,754 TOTAL: \$77,754  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M H FREILICH HQ/J S THEON 33-Oceanography

**NAGW 3510 Oregon State University 6829**  
 WIND-DRIVEN VARIABILITY ON THE SOUTHERN HEMISPHERE OCEANS  
*Period Obligations*  
 04/09/1993-02/28/1994 FY93: \$125,262 TOTAL: \$125,262  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D B CHILTON HQ/D ADAMEC 33-Oceanography

**NAGW 3545 Oregon State University 6830**  
 CHEMICAL STUDIES OF LUNAR, METEORITE AND TERRESTRIAL SAMPLES  
*Period Obligations*  
 04/22/1993-01/31/1994 FY93: \$88,000 TOTAL: \$88,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R A SCHMITT HQ/H C BRINTON 32-Geological Sci

**NASA'S UNIVERSITY PROGRAM**  
**OREGON (Continued)**

**NAGW 3580 Oregon State University 6831**  
 STUDY OF INHERENT OPTICAL PROPERTIES IN RELATION T O  
 REMOTELY SENSED RADIANCE  
*Period Obligations*  
 05/25/1993-02/28/1994 FY93: \$33,044 TOTAL: \$33,044  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R ZANEVELD HQ/D E WICKLAND 33-Oceanography  
 ....A C JANETOS

**NAGW 3642 Oregon State University 6832**  
 CENTER FOR AIRBORNE ENVIRONMENTAL ANALYSES  
*Period Obligations*  
 08/19/1993-03/31/1994 FY93: \$168,686 TOTAL: \$168,686  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R H WARING HQ/D E WICKLAND 39-Env Sci, NEC  
 R W MCCREIGHT ....A C JANETOS  
 C E CHEN

**NAGW 3683 Oregon State University 6833**  
 ASSESSING REMOTE SENSING DATA, EDUCATE PUBLIC ABOU T  
 PACIFIC OCEAN AND OTHER OCEANOGRAPHIC/EARTH SCI  
*Period Obligations*  
 08/12/1993-08/31/1994 FY93: \$492,000 TOTAL: \$492,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 L WEBER HQ/M V PHELPS 33-Oceanography

**NAGW 3716 Oregon State University 6834**  
 ANALYSIS OF LAZY-2 GRAVITROPIC RESPONSE MUTANT OF  
 TOMATO  
*Period Obligations*  
 08/19/1993-06/30/1994 FY93: \$50,000 TOTAL: \$50,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 T LOMAX HQ/T W HALSTEAD 51-Biological Sci

**NAGW 3737 Oregon State University 6835**  
 CYCLING OF DMSP AND DMS IN SURFACE OCEAN WATERS  
*Period Obligations*  
 09/10/1993-12/31/1993 FY93: \$67,266 TOTAL: \$67,266  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 E B SHERR HQ/A C JANETOS 33-Oceanography  
 B F SHERR ....J T SUTTLES  
 G WOLFE

**NAGW 3745 Oregon State University 6836**  
 ANALYSIS OF LAND-USE EFFECTS ON LANDSCAPE PATTERNS AND  
 BIOLOGICAL DIVERSITY IN PACIFIC NW FORESTS  
*Period Obligations*  
 09/17/1993-05/31/1996 FY93: \$84,817 TOTAL: \$84,817  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D O WALLIN HQ/D E WICKLAND 39-Env Sci, NEC  
 W B COHEN ....A C JANETOS  
 G A BRADSHAW

**NAG10-81 Oregon State University 6837**  
 ANALYSIS OF COMPONENTS OF THE GRAVITROPIC RESPONSE IN  
 PLANTS  
*Period Obligations*  
 03/01/1991-06/30/1993 FY93: \$0 TOTAL: \$100,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 T L LOMAX KSC/W M KNOTT 51-Biological Sci

**NAS 1-18992 Oregon State University 6838**  
 ERBE SCIENCE TEAM SUPPORT  
*Period Obligations*  
 09/20/1989-01/19/1994 FY93: \$0 TOTAL: \$301,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J A COAKLEY LARC/J E COOPER 31-Atmos Sci  
 ....B BARKSTROM

**NAS 1-19952 Oregon State University 6839**  
 SCIENCE SUPPORT TO THE LITE SCIENCE TEAM  
*Period Obligations*  
 05/14/1993-05/12/1995 FY93: \$25,000 TOTAL: \$25,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J A COAKLEY LARC/G L MADDREA 31-Atmos Sci

**NAS 5-31360 Oregon State University 6840**  
 MODIS INVESTIGATION  
*Period Obligations*  
 12/30/1991-12/14/2001 FY93: \$290,000 TOTAL: \$440,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M R ABBOTT GSFC/H OSEROFF 33-Oceanography

**NCA 2-600 Oregon State University 6841**  
 A WORKSHOP ON HYDROTHERMAL SYSTEMS AND THE ORIGIN  
 OF LITE  
*Period Obligations*  
 03/29/1991-09/30/1991 FY93: \$0 TOTAL: \$10,450  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 B R SIMONEIT ARC/L HOCHSTEIN 59-Life Sci, NEC

**NCC 2-661 Oregon State University 6842**  
 NUMERICAL SIMULATIONS OF THE MARTIAN ATMOSPHERE  
*Period Obligations*  
 03/15/1990-10/31/1994 FY93: \$27,993 TOTAL: \$63,060  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J R BARNES ARC/R M HABERLE 31-Atmos Sci  
 ....J B POLLACK

**NGT 00-030-029 Oregon State University 6843**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
 04/11/1991-08/31/1993 FY93: \$0 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M L DICKSON HQ/G ASRAR 33-Oceanography

**NGT 00-030-037 Oregon State University 6844**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
 02/07/1991-12/31/1993 FY93: \$0 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 F D ZARON HQ/G ASRAR 33-Oceanography

**NGT 00-030-066 Oregon State University 6845**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
 09/19/1991-12/31/1992 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A H BARNARD HQ/D M BUTLER 33-Oceanography  
 M ABBOTT ....G S WILSON

**NASA'S UNIVERSITY PROGRAM**  
**OREGON (Continued)**

**NGT 00-030-188 Oregon State University 6846**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
 09/01/1993-08/31/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 B SHERR HQ/G ASRAR 33-Oceanography  
 ....D M BUTLER

**NGT 00-050-914 Oregon State University 6854**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 06/21/1992-06/30/1994 FY93: \$22,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R WARING HQ/J ALEXANDER 55-Agriculture Sci

**NGT 00-030-203 Oregon State University 6847**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
 09/01/1993-08/31/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 P SOLLINS HQ/G ASRAR 39-Env Sci, NEC  
 ....D M BUTLER

**NGT 00-070-193 Oregon State University 6855**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
 MINORITY FOCUS PROGRAM  
*Period Obligations*  
 06/04/1990-06/30/1993 FY93: \$0 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M ABBOTT HQ/F C OWENS 32-Geological Sci

**NGT 00-040-033 Oregon State University 6848**  
 NATL SPACE GRANT COLLEGE AND FELLOWSHIP PROGRAM  
*Period Obligations*  
 04/03/1991-02/28/1994 FY93: \$170,000 TOTAL: \$498,001  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D R CALDWELL HQ/E T SCHWARTZ 99-Multi-Discip

**NCA 2-692 Portland State University 6856**  
 INVESTIGATION OF A WINDOWS ENVIRONMENT FOR DECISIO N  
 SUPPORT SOFTWARE FOR USE IN LAUNCH COUNTDOWN  
*Period Obligations*  
 03/02/1992-03/15/1993 FY93: \$0 TOTAL: \$15,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J SCHOLTZ ARC/M G SHAFTO 22-Computer Science

**NGT 00-050-321 Oregon State University 6849**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 07/28/1988-07/31/1993 FY93: \$0 TOTAL: \$58,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 T LOMAX HQ/F C OWENS 51-Biological Sci

**NCA 2-691 Reed College 6857**  
 CYTOPLASMIC REARRANGEMENTS AND ESTABLISHMENT OF TH E  
 EMBRYONIC BODY PLAN AT MICROGRAVITY  
*Period Obligations*  
 03/03/1992-02/28/1994 FY93: \$39,700 TOTAL: \$79,678  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S D BLACK ARC/K A SOUZA 51-Biological Sci

**NGT 00-050-455 Oregon State University 6850**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 08/15/1989-06/30/1992 FY93: \$0 TOTAL: \$62,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 T LOMAX HQ/F C OWENS 59-Life Sci, NEC

**NAG 8-222 Southern Oregon State College 6858**  
 JOVE  
*Period Obligations*  
 02/25/1992-07/16/1994 FY93: \$39,000 TOTAL: \$98,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J D'ALLURA MSFC/F SIX 11-Astronomy  
 G STRINGER

**NGT 00-050-520 Oregon State University 6851**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 09/20/1989-07/31/1992 FY93: \$0 TOTAL: \$61,948  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R WARING HQ/F C OWENS 39-Env Sci, NEC

**NAG 1-963 University of Oregon - Eugene 6859**  
 ATMOSPHERIC AND SPECTROSCOPIC RESEARCH IN THE FAR  
 INFRARED  
*Period Obligations*  
 02/27/1989-02/21/1994 FY93: \$55,001 TOTAL: \$595,340  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 K J PARK LARC/I G NOLT 31-Atmos Sci

**NGT 00-050-624 Oregon State University 6852**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 06/08/1990-06/30/1993 FY93: \$0 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J G RICHMAN HQ/F C OWENS 33-Oceanography

**NAG 1-1427 University of Oregon - Eugene 6860**  
 EXCITATION OF ELECTRONIC STATES OF ATOMS AND MOLE CULES  
 BY COLLISION WITH HEAVY GAS PARTICLES  
*Period Obligations*  
 05/08/1992-09/30/1993 FY93: \$0 TOTAL: \$45,537  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 C F HANSEN LARC/P A GNOFFO 41-Aero Engr

**NGT 00-050-829 Oregon State University 6853**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 09/23/1991-08/31/1993 FY93: \$0 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A C KLEIN HQ/F C OWENS 49-Engr, NEC

**NASA'S UNIVERSITY PROGRAM**  
**OREGON (Continued)**

**NAG 5-755 University of Oregon - Eugene 6861**  
 LITHOSPHERIC DYNAMICS OF THE SOUTHERN CALIFORNIA REGION  

Period	Obligations
03/15/1986-12/31/1991	FY93: \$0 TOTAL: \$361,050
Prin. Invest.	NASA Tech. Officer CASE Category
E D HUMPHREYS	GSFC/H V FREY 32-Geological Sci

**NAGW 3377 Bucknell University 6868**  
 EFFECTS OF NON-SPHERICITY AND HETEROGENEITY ON LIGHT SCATTERING FROM COMETARY DUST.  

Period	Obligations
01/01/1993-12/31/1993	FY93: \$21,356 TOTAL: \$21,356
Prin. Invest.	NASA Tech. Officer CASE Category
D J LIEN	HQ/J M BOYCE 32-Geological Sci

**NAG 5-1903 University of Oregon - Eugene 6862**  
 KINEMATIC AND DYNAMIC MODELING OF WESTERN NORTH AMERICAN TECTONIC ACTIVITY  

Period	Obligations
02/20/1992-02/28/1994	FY93: \$88,000 TOTAL: \$148,000
Prin. Invest.	NASA Tech. Officer CASE Category
E D HUMPHREYS	GSFC/B G BILLS 32-Geological Sci

**NAG 1-1075 Carnegie - Mellon University 6869**  
 RESEARCH ON CONTROL OF REDUNDANT MANIPULATORS  

Period	Obligations
01/11/1990-12/31/1993	FY93: \$75,000 TOTAL: \$268,544
Prin. Invest.	NASA Tech. Officer CASE Category
P K KHOSLA	LARC/P W GOODE 29-Math/Computer, NEC
	....S L VAZQUEZ

**NAG 5-2086 University of Oregon - Eugene 6863**  
 SOFT X-RAY HALOS AROUND LOW MASS DISK GALAXIES  

Period	Obligations
08/25/1992-09/14/1993	FY93: \$0 TOTAL: \$19,883
Prin. Invest.	NASA Tech. Officer CASE Category
G D BOTHUN	GSFC/R PETRE 11-Astronomy

**NAG 2-634 Carnegie - Mellon University 6870**  
 MODELLING THE NASA TEST DIRECTOR  

Period	Obligations
05/02/1990-12/31/1993	FY93: \$45,000 TOTAL: \$398,707
Prin. Invest.	NASA Tech. Officer CASE Category
B E JOHN	ARC/R W REWINGTON 69-Psych, NEC
D STEIER	....M G SHAFTE
A NEWELL	

**NAGW 3354 University of Oregon - Eugene 6864**  
 NAGW-3354UNIV OREGON EUGENE/NUCLEATION OF QUANTIZED VORTICES FROM ROTATING SUPERFLUID DROPS  

Period	Obligations
01/27/1993-12/31/1993	FY93: \$100,000 TOTAL: \$100,000
Prin. Invest.	NASA Tech. Officer CASE Category
R J DONNELLY	HQ/M C LEE 13-Physics

**NAG 2-709 Carnegie - Mellon University 6871**  
 NUMERICAL STUDY OF INTERNAL FLOWS AND BOUNDARY LAYER CONTROL IN INLETS OF TURBOJET ENGINES  

Period	Obligations
06/04/1991-12/31/1993	FY93: \$93,210 TOTAL: \$256,409
Prin. Invest.	NASA Tech. Officer CASE Category
T SHIH	ARC/W J CHYU 41-Aero Engr
	....D P BENCZE

**NCA 2-671 University of Oregon - Eugene 6865**  
 TEMPORAL CHARACTERISTICS OF LOW-MASS X-RAY BINARIES.  

Period	Obligations
11/04/1991-11/14/1992	FY93: \$0 TOTAL: \$7,975
Prin. Invest.	NASA Tech. Officer CASE Category
J IMAMURA	ARC/J SCARGLE 41-Aero Engr

**NAG 2-850 Carnegie - Mellon University 6872**  
 HYDROGEN-RESISTANT TITANIUM ALUMINIDE ALLOYS  

Period	Obligations
06/24/1993-05/31/1994	FY93: \$105,000 TOTAL: \$105,000
Prin. Invest.	NASA Tech. Officer CASE Category
A W THOMPSON	ARC/H G NELSON 47-Materials Engr

**NCC 2-690 University of Oregon - Eugene 6866**  
 DE-COMMUTATION OF EXPERIMENT DATA RECORD (EDR) AND DETERMINATION IN ENGINEERING UNITS OF ALL .....  

Period	Obligations
08/14/1990-04/30/1993	FY93: \$0 TOTAL: \$36,503
Prin. Invest.	NASA Tech. Officer CASE Category
D B KIRK	ARC/R E YOUNG 31-Atmos Sci
	....B CHIN

**NAG 3-929 Carnegie - Mellon University 6873**  
 NUM STUDY OF THE FLOW FIELDS INSIDE COMP AND TURB COMP OF GAS TURB ENG  

Period	Obligations
09/18/1988-11/13/1993	FY93: \$65,878 TOTAL: \$330,708
Prin. Invest.	NASA Tech. Officer CASE Category
T I SHIH	LERC/R J ROELKE 41-Aero Engr
	....R D MOORE

**PENNSYLVANIA**

**NGT 00-090-183 Bryn Mawr College 6867**  
 UNDERGRADUATE STUDENT RESEARCHERS PROGRAM  

Period	Obligations
08/27/1993-08/14/1994	FY93: \$12,000 TOTAL: \$12,000
Prin. Invest.	NASA Tech. Officer CASE Category
J MILLER	HQ/D RUSSELL 99-Multi-Discip

**NAG 3-1009 Carnegie - Mellon University 6874**  
 NUMERICAL STUDIES OF COMBUSTION PROCESS IN HSCT AND SMALL GAS TURBINE ENGINES  

Period	Obligations
02/14/1989-12/31/1993	FY93: \$90,000 TOTAL: \$460,000
Prin. Invest.	NASA Tech. Officer CASE Category
J I RAMOS	LERC/H L NGUYEN 46-Mech Engr
T I SHIH	

**NASA'S UNIVERSITY PROGRAM**  
**PENNSYLVANIA (Continued)**

**NAG 3-1390** **Carnegie - Mellon University** **6875**  
 MICROSCALE HYDRODYNAMICS NEAR MOVING CONTACT LINES  
*Period* *Obligations*  
 12/01/1992-11/30/1993 FY93: \$157,232 TOTAL: \$157,232  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 S GAROFF LERC/J A SALZMAN 19-Phys Sci, NEC

**NAG10-95** **Carnegie - Mellon University** **6882**  
 CONFIGURATION OF PRECISION MECHANISM FOR SPACE SHUTTLE  
 TILE PROCESSING  
*Period* *Obligations*  
 12/16/1991-12/16/1993 FY93: \$473,491 TOTAL: \$1,109,431  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 W L WHITTAKER KSC/T GRAHAM 99-Multi-Discip

**NAG 3-1487** **Carnegie - Mellon University** **6876**  
 EXTENSION OF THE INTEGRATED FORCE METHOD FOR MEMBRANE AND BENDING COUPLED PROBLEMS  
*Period* *Obligations*  
 04/19/1993-04/12/1994 FY93: \$32,082 TOTAL: \$32,082  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 S SAIGAL LERC/D A HOPKINS 49-Engr, NEC

**NAS 8-38348** **Carnegie - Mellon University** **6883**  
 MODELING THE EFFECTS OF SHROUD CONTACT AND FRICTION DAMPERS ON THE MISTUNED RESPONSE OF TURBO-PUMPS  
*Period* *Obligations*  
 05/15/1991-05/14/1994 FY93: \$100,000 TOTAL: \$250,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 J H GRIFFIN MSFC/L A KIEFLING 46-Mech Engr  
 ....K K MIMS

**NAG 3-1505** **Carnegie - Mellon University** **6877**  
 TRANSPORT PHENOMENA IN STRATIFIED MULTI-FLUID FLOW IN THE PRESENCE AND IN THE ABSENCE OF GRAVITY  
*Period* *Obligations*  
 06/23/1993-06/16/1994 FY93: \$130,000 TOTAL: \$130,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 N CHIGIER LERC/R L THOMPSON 19-Phys Sci, NEC

**NCA 2-602** **Carnegie - Mellon University** **6884**  
 THE ROLE OF MICROSTRUCTURE IN HYDROGEN-INDUCED DUCTILITY LOSSES IN TITANIUM ALUMINIDE ALLOYS  
*Period* *Obligations*  
 05/01/1991-05/14/1993 FY93: \$0 TOTAL: \$80,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 A W THOMPSON ARC/H G NELSON 47-Materials Engr

**NAG 5-1468** **Carnegie - Mellon University** **6878**  
 RESEARCH RELATIVE TO AVOIDING SPACE ROBOT COLLISIONS UTILIZING TRI-MODE SKIN SENSORS  
*Period* *Obligations*  
 09/20/1990-10/14/1993 FY93: \$40,000 TOTAL: \$95,004  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 F PRINZ GSFC/J M VRANISH 22-Computer Science  
 S MAHALINGAM

**NCA 2-824** **Carnegie - Mellon University** **6885**  
 REDUCING NON-UNIFORMITIES IN TURBOJET INLETS BY VO RTE X GENERATORS  
*Period* *Obligations*  
 06/03/1993-08/31/1993 FY93: \$17,982 TOTAL: \$17,982  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 T SHIH ARC/W J CHYU 46-Mech Engr

**NAG 8-964** **Carnegie - Mellon University** **6879**  
 ELECTROKINETIC TRANSPORT OF HETEROGENEOUS PARTICLE IN  
*Period* *Obligations*  
 05/26/1993-12/31/1993 FY93: \$92,145 TOTAL: \$92,145  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 J L ANDERSON MSFC/T MILLER 19-Phys Sci, NEC  
 S GAROFF

**NCC 2-707** **Carnegie - Mellon University** **6886**  
 CONSTRAINT-DIRECTED INTEGRATION OF SCHEDULING AND PLANNING WITH APPLICATIONS TO SPACE TELESCOPE.....  
*Period* *Obligations*  
 03/08/1991-09/30/1993 FY93: \$70,000 TOTAL: \$270,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 S F SMITH ARC/P E FRIEDLAND 22-Computer Science  
 ....P H LAIRD

**NAGW 1175** **Carnegie - Mellon University** **6880**  
 AUTONOMOUS PLANETARY ROVER  
*Period* *Obligations*  
 10/19/1987-11/30/1993 FY93: \$1,356,120 TOTAL: \$9,700,979  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 T KANADE HQ/M D MONTEMERLO 49-Engr, NEC  
 T MITCHELL ....C B SOLLOWAY  
 W L WHITTAKER

**NCC 3-262** **Carnegie - Mellon University** **6887**  
 DEVELOPMENT OF MICROSCOPIC INTERFACE IMAGING AND FLOW FIELD MEASUREMENTS FOR FLUIDS NEAR SOLID SURFACE  
*Period* *Obligations*  
 04/24/1992-07/31/1994 FY93: \$0 TOTAL: \$50,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 S GAROFF LERC/M M WEISLOGEL 13-Physics  
 ....R W VERNON

**NAGW 2998** **Carnegie - Mellon University** **6881**  
 EREBUS EXPLORER  
*Period* *Obligations*  
 03/24/1992-12/31/1993 FY93: \$834,795 TOTAL: \$2,834,795  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 R WHITTAKER HQ/D LAVERY 49-Engr, NEC

**NCC 3-297** **Carnegie - Mellon University** **6888**  
 A LUNAR LANDER ENGINEERING MODEL  
*Period* *Obligations*  
 03/29/1993-09/14/1993 FY93: \$35,000 TOTAL: \$35,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 W L WHITTAKER LERC/L S MASON 46-Mech Engr  
 ....D J HOFFMAN

**NASA'S UNIVERSITY PROGRAM**  
**PENNSYLVANIA (Continued)**

**NGT 00-050-423 Carnegie - Mellon University 6889**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 07/19/1989-07/31/1992 FY93: \$0 TOTAL: \$62,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S A SHAFER HQ/F C OWENS 21-Mathematics

**NGT 00-051-026 Carnegie - Mellon University 6897**  
 GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 05/14/1993-06/30/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S A SHAFER ARC/M MOORE 22-Computer Science

**NGT 00-050-436 Carnegie - Mellon University 6890**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 08/01/1989-08/31/1993 FY93: \$0 TOTAL: \$73,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M K CHYU HQ/F C OWENS 46-Mech Engr

**NGT 00-051-039 Carnegie - Mellon University 6898**  
 NGT-51039/CARNEGIE MELLON UNIV/GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 05/05/1993-06/30/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R SIMMONS JPL/C HIX 45-Elec Engr  
 T MITCHELL

**NGT 00-050-559 Carnegie - Mellon University 6891**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 07/24/1990-07/31/1994 FY93: \$11,000 TOTAL: \$77,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 T KANADE HQ/V C OWENS 45-Elec Engr

**NGT 00-051-045 Carnegie - Mellon University 6899**  
 GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 07/14/1993-08/31/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 E KROTKOV MSFC/F SIX 45-Elec Engr

**NGT 00-050-577 Carnegie - Mellon University 6892**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 07/10/1990-06/30/1993 FY93: \$0 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D CASASANT HQ/F C OWENS 45-Elec Engr

**NGT 00-051-162 Carnegie - Mellon University 6900**  
 GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 07/05/1993-07/31/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J M PEHA HQ/P HUNTER 22-Computer Science

**NGT 00-050-823 Carnegie - Mellon University 6893**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 08/12/1991-07/31/1994 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A W THOMPSON HQ/F C OWENS 47-Materials Engr

**NGT 00-090-184 Carnegie - Mellon University 6901**  
 UNDERGRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 08/27/1993-08/14/1994 FY93: \$12,000 TOTAL: \$12,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R KAIL HQ/D RUSSELL 99-Multi-Discip

**NGT 00-050-965 Carnegie - Mellon University 6894**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 06/15/1992-09/14/1994 FY93: \$22,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 H T KUNG HQ/P HUNTER 22-Computer Science

**NAG 1-1102 Drexel University 6902**  
 ROBUST CONTROL OF SYSTEMS WITH REAL PARAMETER UNCERTAINTY AND UNMODELLED DYNAMICS  
*Period Obligations*  
 02/09/1990-07/31/1993 FY93: \$24,788 TOTAL: \$190,283  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R FISCHL LARC/M R WASZAK 41-Aero Engr  
 B C CHANG ....C M BELCASTRO

**NGT 00-050-990 Carnegie - Mellon University 6895**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 07/24/1992-06/30/1994 FY93: \$22,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 P KHOSLA LARC/E J PRIOR 45-Elec Engr

**NAG 1-1124 Drexel University 6903**  
 DESIGN OF COMBINATIONAL AND SEQUENTIAL MACHINES THAT ARE UPSET TOLERANT  
*Period Obligations*  
 05/18/1990-12/31/1993 FY93: \$29,996 TOTAL: \$166,709  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 L A TRACHTENBERG LARC/F L PITTS 45-Elec Engr  
 R FISCHL ....C W MEISSNER

**NGT 00-050-995 Carnegie - Mellon University 6896**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 09/17/1991-06/30/1994 FY93: \$22,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 B MOREL HQ/J K ALEXANDER 49-Engr, NEC

**NAG 1-1224 Drexel University 6904**  
 SULPHUR GAS MEASUREMENTS BY GAS CHROMATOGRAPHY/MASS SPECTROMETRY W/ISOTOPICALLY LABELLED INTERNAL  
*Period Obligations*  
 02/15/1991-06/30/1994 FY93: \$311,000 TOTAL: \$562,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A R BANDY LARC/R J BENDURA 31-Atmos Sci  
 D C THORNTON ....J M HOELL

**NASA'S UNIVERSITY PROGRAM**  
**PENNSYLVANIA (Continued)**

**NAG 3-1059 Drexel University 6905**  
 DEVELOPMENT OF IMPROVED HYPERSONIC ENGINE SEALS  
*Period Obligations*  
 06/30/1989-12/31/1993 FY93: \$130,981 TOTAL: \$602,100  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 F K KO LERC/B M STEINETZ 46-Mech Engr  
 R MUTHARASON  
 P PASTORE

**NAGW 2559 Drexel University 6912**  
 NAGW-2559/DREXEL UNIV/STAR CLUSTER EVOLUTION WITH  
 PRIMORDIAL BINARIES  
*Period Obligations*  
 06/13/1991-02/28/1994 FY93: \$55,000 TOTAL: \$120,480  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S L MCMILLAN HQ/D P HUENEMOERDER 11-Astronomy  
 ....E J WEILER

**NAG 3-1117 Drexel University 6906**  
 PROPANE COMBUSTION NEAR THE LEAN FLAMMABILITY LIMIT AND  
 THE SOOTING LIMIT  
*Period Obligations*  
 12/29/1989-11/30/1993 FY93: \$49,998 TOTAL: \$209,845  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D L MILLER LERC/M J RABINOWITZ 41-Aero Engr

**NAGW 3738 Drexel University 6913**  
 DEVELOPMENT OF INSTRUCTIONAL MATERIALS BASED ON THE  
 GREENHOUSE  
*Period Obligations*  
 09/08/1993-07/31/1994 FY93: \$80,000 TOTAL: \$80,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D R BROOKE HQ/R A SCHIFFER 59-Life Sci, NEC  
 ....D M BUTLER

**NAG 3-1347 Drexel University 6907**  
 THERMAL DURABILITY OF SAPPHIRE OPTICAL WAVEGUIDES  
 PROCESSED INTO HIGH TEMPERATURE CERAMIC COMPOSITES  
*Period Obligations*  
 04/23/1992-11/13/1993 FY93: \$40,000 TOTAL: \$70,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M A EL-SHERIF LERC/D J ROTH 47-Materials Engr

**NAS 1-18154 Drexel University 6914**  
 (SBRE) EARTH RADIATION BUDGET EXPERIMENT SCIENTIFIC  
 INVESTIGATIONS  
*Period Obligations*  
 09/18/1985-09/18/1993 FY93: \$0 TOTAL: \$455,624  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 F B HOUSE LARC/J E COOPER 31-Atmos Sci

**NAG 3-1421 Drexel University 6908**  
 FUEL-AIR MIXING IN LEAN BURN DIRECT INJECTION COMBUSTION  
*Period Obligations*  
 12/17/1992-11/30/1993 FY93: \$49,900 TOTAL: \$49,900  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 K J CHOI LERC/R R TACINA 41-Aero Engr

**NCC 1-171 Drexel University 6915**  
 NEURAL CONTROL OF MAGNETIC SUSPENSION SYSTEMS FOR  
 AEROSPACE APPLICATIONS  
*Period Obligations*  
 03/12/1993-03/08/1994 FY93: \$50,000 TOTAL: \$50,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S GRAY LARC/D I SOLOWAY 45-Elec Engr  
 ....P J HALEY

**NAG 8-298 Drexel University 6909**  
 IMPACT OF TEMPORAL AND SPATIAL RESOLUTION ON HEAT AND  
 MOISTURE BUDGET DIAGNOSTICS  
*Period Obligations*  
 07/08/1993-07/07/1994 FY93: \$16,000 TOTAL: \$16,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D PERKEY MSFC/F ROBERTSON 54-Env Biology

**NCC 3-149 Drexel University 6916**  
 FIBER OPTIC LINKS FOR MILLIMETER WAVE PHASED ARRAY  
 ANTENNAS IN COMMUNICATION SATELLITES II  
*Period Obligations*  
 09/22/1989-03/14/1994 FY93: \$69,000 TOTAL: \$241,767  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A S DARYOUSH LERC/R R KUNATH 45-Elec Engr

**NAG 8-714 Drexel University 6910**  
 SATELLITE OBSERV SYS SIMULATION EXPER ON MESOSCALE  
 PRECIPITATION SIMULATIONS  
*Period Obligations*  
 05/01/1988-12/31/1992 FY93: \$1 TOTAL: \$258,569  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D J PERKEY MSFC/F ROBERTSON 31-Atmos Sci

**NGT 00-050-860 Drexel University 6917**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 09/17/1991-09/15/1993 FY93: \$0 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D PERKEY HQ/F C OWENS 19-Phys Sci, NEC

**NAG 8-924 Drexel University 6911**  
 LAMPS DYNAMIC MODEL  
*Period Obligations*  
 07/07/1992-06/30/1993 FY93: \$0 TOTAL: \$16,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D J DERKEY MSFC/F R ROBERTSON 31-Atmos Sci

**NCC 2-745 Franklin-Marshall College 6918**  
 INFRARED STUDIES OF COOL MATERIAL AROUND YOUNG MASSIVE  
 SEQUENCE STARS  
*Period Obligations*  
 01/13/1992-09/30/1993 FY93: \$9,280 TOTAL: \$17,408  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D E BACKMAN ARC/F C WITTEBORN 11-Astronomy  
 ....B J BALDWIN

**NASA'S UNIVERSITY PROGRAM  
PENNSYLVANIA (Continued)**

**NAGW 3521 Lafayette College 6919**  
NAGW-3521/LAFAYETTE COLLEGE/DENSITIES AND PHASE EQUILIBRIA TO 1.4 GPA AND 120K  
*Period* *Obligations*  
04/16/1993-04/30/1994 FY93: \$36,805 TOTAL: \$36,805  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
D HOGENBLOOM HQ/J BOYCE 32-Geological Sci

**NAGW 3374 Lehigh University 6926**  
SHOCK AND THERMAL HISTORY OF IRON AND CHONDRITIC METEORITES  
*Period* *Obligations*  
02/10/1993-02/28/1994 FY93: \$139,050 TOTAL: \$139,050  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J I GOLDSTEIN HQ/H C BRINTON 32-Geological Sci

**NCC 3-267 Lafayette College 6920**  
EFFECTS OF THERMOMECHANICAL PROCESSING ON THE MICROSTRUCTURE AND PROPERTIES OF NB-1%Zr-C ALLOYS  
*Period* *Obligations*  
06/04/1992-07/31/1993 FY93: \$0 TOTAL: \$70,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
M UZ LERC/R H TITRAN 47-Materials Engr  
....R V MINER

**NCA 2-673 Lehigh University 6927**  
INFRARED LABORATORY SPECTRAL STUDIES FOR THE EARTH'S UPPER ATMOSPHERE AND VENUS LOWER ATMOSPHERE.  
*Period* *Obligations*  
11/05/1991-06/30/1993 FY93: \$26,666 TOTAL: \$66,666  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R LOVEJOY ARC/G C CHACKERIAN 11-Astronomy

**NAG 1-1477 Lehigh University 6921**  
A LINKAGE SUSPENSION SYSTEM FOR FLEXIBLE SPACE ROBOTS NLPN 92-1223  
*Period* *Obligations*  
02/01/1992-02/28/1994 FY93: \$62,498 TOTAL: \$62,498  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
M CHEW LARC/J JUANG 42-Astro Engr  
....L G HORTA

**NGT 00-070-346 Lehigh University 6928**  
NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED MINORITY FOCUS PROGRAM  
*Period* *Obligations*  
08/12/1993-06/30/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J RICLES HQ/D K RUSSELL 46-Mech Engr

**NAG 5-2100 Lehigh University 6922**  
MASS FLOW IN THE INTERACTING SEMI-DETACHED BINARY DELTA LIBRAE  
*Period* *Obligations*  
09/15/1992-01/31/1994 FY93: \$15,560 TOTAL: \$15,560  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
G E MCCLUSKEY GSFC/D WEST 11-Astronomy

**NSG-5386 Lehigh University 6929**  
MASS FLOW AND EVALUATION IN CLOSE BINORIES  
*Period* *Obligations*  
07/01/1979-07/31/1992 FY93: \$0 TOTAL: \$186,666  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
G E MCCLUSKEY GSFC/Y KONDO 11-Astronomy  
Y KONDO

**NAG 8-867 Lehigh University 6923**  
MONODISPERSE POLYMER PARTICLES CONTAINING LASER-EXCITABLE DYES  
*Period* *Obligations*  
02/28/1991-03/06/1993 FY93: \$0 TOTAL: \$44,855  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J W VANDERHOFF MSFC/C M DAVIS 12-Chemistry

**NGT 00-090-020 Lincoln University - Pa. 6930**  
LINCOLN ADVANCED SCIENCE AND ENGINEERING REINFORCEMENT PROGRAM  
*Period* *Obligations*  
08/23/1988-06/30/1993 FY93: \$0 TOTAL: \$400,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
W WILLIAMS HQ/Y B FREEMAN 49-Engr, NEC

**NAG 8-972 Lehigh University 6924**  
MONODISPERSE POLYMER PARTICLES CONTAINING LASER-EXCITABLE DYES  
*Period* *Obligations*  
05/24/1993-06/14/1994 FY93: \$119,000 TOTAL: \$119,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J W VANDERHOFF MSFC/D M KORNFELD 12-Chemistry

**NAG 9-118 Pennsylvania State Univ - Hershey Med. 6931**  
VECTION-INDUCED GASTRIC DYSRHYTHMIAS IN  
*Period* *Obligations*  
05/01/1985-04/01/1994 FY93: \$48 TOTAL: \$608,353  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
K KOCH JSC/F A KUTYNA 56-Medical Sciences  
R M STERN

**NAG 9-45 Lehigh University 6925**  
HISTORY IRON CHONDRITIC METEORITES  
*Period* *Obligations*  
04/01/1983-10/01/1994 FY93: \$0 TOTAL: \$1,133,635  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J I GOLDSTEIN JSC/I D BROWNE 47-Materials Engr  
D B WILLIAMS  
R SELLAMUTHU

**NCC 2-127 Pennsylvania State Univ - Hershey Med. 6932**  
EFFECTS OF CSF HORMONAL AND IONIC COMPOSITION ON SALT/WATER METABOLISM  
*Period* *Obligations*  
04/01/1981-02/29/1992 FY93: \$0 TOTAL: \$464,856  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
W B SEVERS ARC/L KEIL 51-Biological Sci



**NASA'S UNIVERSITY PROGRAM  
PENNSYLVANIA (Continued)**

**NGT 00-070-327 Pennsylvania State Univ -hershey Med. 6933**  
NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
MINORITY FOCUS PROGRAM

<i>Period</i>	<i>Obligations</i>	
07/01/1993-06/30/1994	FY93: \$22,000	TOTAL: \$22,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
W SEVERS	HQ/D K RUSSELL	56-Medical Sciences

**NAG 1-849 Pennsylvania State Univ. - Univ. Park 6934**  
PREDICTION OF FORCES AND MOMENTS FOR FLIGHT VEHICLE  
CONTROL EFFECTORS

<i>Period</i>	<i>Obligations</i>	
02/03/1988-07/31/1992	FY93: \$196	TOTAL: \$198,696
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
M D MAUGHMER	LARC/J D SHAUGHNESSY	41-Aero Engr

**NAG 1-947 Pennsylvania State Univ. - Univ. Park 6935**  
ATMOSPHERE EFFECTS ON SONIC BOOMS FROM AIRCRAFT DE  
SIGNS FOR MINIMAL BOOMS

<i>Period</i>	<i>Obligations</i>	
01/12/1989-10/14/1991	FY93: \$2,361	TOTAL: \$265,638
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
A D PIERCE	LARC/G MCANINCH	13-Physics
	...../J S PREISSER	

**NAG 1-982 Pennsylvania State Univ. - Univ. Park 6936**  
STRUCTURAL DESIGN CRITERIA FOR FILAMENT-WOUND COM-  
POSITE SHELLS

<i>Period</i>	<i>Obligations</i>	
02/28/1989-11/14/1992	FY93: \$2,149	TOTAL: \$253,995
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
H T HAHN	LARC/J H STARNES	41-Aero Engr
D W JENSEN		

**NAG 1-999 Pennsylvania State Univ. - Univ. Park 6937**  
STUDIES OF RADIATION AND MICROPHYSICS IN CIRRUS AND  
MARINE STRATOCUMULUS

<i>Period</i>	<i>Obligations</i>	
05/25/1989-11/30/1994	FY93: \$123,000	TOTAL: \$293,001
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
T P ACKERMAN	LARC/T OWENS	31-Atmos Sci

**NAG 1-1047 Pennsylvania State Univ. - Univ. Park 6938**  
THE AEROACOUSTICS OF SUPERSONIC JET

<i>Period</i>	<i>Obligations</i>	
08/16/1989-03/31/1994	FY93: \$50,336	TOTAL: \$498,548
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
P J MORRIS	LARC/J M SEINER	41-Aero Engr
D K MCLAUGHLIN	...../J S PREISSER	

**NAG 1-1057 Pennsylvania State Univ. - Univ. Park 6939**  
IN SITU DETECTION OF TROPOSPHERIC OH,HO<sub>2</sub>, NO<sub>2</sub>, AND NO BY  
LASER INDUCED FLUORESCENCE IN DETECTION

<i>Period</i>	<i>Obligations</i>	
08/31/1989-03/31/1994	FY93: \$146,000	TOTAL: \$492,738
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
W H BRUNE	LARC/J M HOELL	31-Atmos Sci
	...../R J BENDURA	

**NAG 1-1070 Pennsylvania State Univ. - Univ. Park 6940**  
AN EXPERIMENTAL STUDY OF THE SOURCES OF FLUCTUAT- ING  
PRESSURE LOADS BENEATH SWEPT SHOCK/BOUNDARY-LA

<i>Period</i>	<i>Obligations</i>	
11/15/1989-12/31/1992	FY93: \$0	TOTAL: \$173,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
G S SETTLES	LARC/W E ZORUMSKI	41-Aero Engr
	...../J C HARDIN	

**NAG 1-1095 Pennsylvania State Univ. - Univ. Park 6941**  
EXTENDED FIELD OBSERVATIONS OF CIRRUS CLOUDS USING A  
GROUND BASED CLOUD OBSERVING SYSTEM

<i>Period</i>	<i>Obligations</i>	
02/28/1990-07/31/1993	FY93: \$72,881	TOTAL: \$261,367
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
T P ACKERMAN	LARC/T OWENS	31-Atmos Sci
B A ALBRECHT		

**NAG 1-1198 Pennsylvania State Univ. - Univ. Park 6942**  
ANALYSIS AND DESIGN OF PLANAR AND NON-PLANAR WINGS FOR  
INDUCED DRAG MINIMIZATION

<i>Period</i>	<i>Obligations</i>	
11/20/1990-05/31/1992	FY93: \$0	TOTAL: \$54,548
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
M K MAUGHMER	LARC/P E MINECK	41-Aero Engr

**NAG 1-1332 Pennsylvania State Univ. - Univ. Park 6943**  
FINITE DIFFERENCE TIME DOMAIN MODELING OF ANTENNAS

<i>Period</i>	<i>Obligations</i>	
08/28/1991-11/14/1992	FY93: \$0	TOTAL: \$95,883
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
R J LUEBBERS	LARC/F B BECK	45-Elec Engr
	...../M C GILREATH	

**NAG 1-1350 Pennsylvania State Univ. - Univ. Park 6944**  
FINITE DIFFERENCE TIME DOMAIN MODELING OF STEADY S TATE  
SCATTERING FROM JET ENGINES WITH MOVING TURB

<i>Period</i>	<i>Obligations</i>	
09/25/1991-09/23/1993	FY93: \$0	TOTAL: \$237,513
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
R J LUEBBERS	LARC/F B BECK	45-Elec Engr
K KUNZ	...../M C GILREATH	

**NAG 1-1365 Pennsylvania State Univ. - Univ. Park 6945**  
ATMOSPHERE TURBULENCE EFFECTS ON SONIC BOOMS

<i>Period</i>	<i>Obligations</i>	
03/27/1992-03/18/1993	FY93: \$0	TOTAL: \$112,995
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
A D PIERCE	LARC/G L MCANINCH	41-Aero Engr
V W SPARROW	...../W L WILLSHIRE	

**NAG 1-1367 Pennsylvania State Univ. - Univ. Park 6946**  
COMPUTATIONAL AEROACOUSTICS USING NONLINEAR CFD  
TECHNIQUES ON PARALLEL COMPUTERS

<i>Period</i>	<i>Obligations</i>	
01/15/1992-12/31/1993	FY93: \$50,000	TOTAL: \$100,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
L N LONG	LARC/J W POSEY	41-Aero Engr
	...../W R WATSON	

**NASA'S UNIVERSITY PROGRAM**  
**PENNSYLVANIA (Continued)**

**NAG 1-1371 Pennsylvania State Univ. - Univ. Park 6947**  
 ANALYSIS OF IMAGE SEQUENCES FROM SENSORS FOR  
 RESTRICTED-VISIBILITY OPERATIONS

Period	Obligations	
01/31/1992-01/23/1994	FY93: \$101,291	TOTAL: \$207,218
Prin. Invest.	NASA Tech. Officer	CASE Category
R KASTURI	LARC/R L HARRIS	29-Math/Cmputer, NEC
	....V M BATSON	

**NAG 1-1504 Pennsylvania State Univ. - Univ. Park 6954**  
 VALIDATION OF FDTD SCATTERING FROM REALISTIC TARGETS  
 NLPN 93-213

Period	Obligations	
04/21/1993-04/20/1994	FY93: \$65,789	TOTAL: \$65,789
Prin. Invest.	NASA Tech. Officer	CASE Category
R J LUEBBERS	LARC/F B BECK	45-Elec Engr

**NAG 1-1377 Pennsylvania State Univ. - Univ. Park 6948**  
 DEVELOPMENT OF (NZP) BASED LOW EXPANSION MATERIALS FOR  
 OXIDATION PROTECTIVE COATINGS ON CARBON—CARBO

Period	Obligations	
01/31/1992-07/23/1993	FY93: \$27,000	TOTAL: \$80,888
Prin. Invest.	NASA Tech. Officer	CASE Category
R ROY	LARC/W L VAUGHN	47-Materials Engr
D K AGRAWAL		

**NAG 1-1547 Pennsylvania State Univ. - Univ. Park 6955**  
 EXTENDED FIELD OBSERVATIONS OF CIRRUS CLOUDS USING A  
 GROUND-BASED CLOUD OBSERVING SYSTEM NLPN 93-70

Period	Obligations	
09/28/1993-11/30/1994	FY93: \$82,000	TOTAL: \$82,000
Prin. Invest.	NASA Tech. Officer	CASE Category
T P ACKERMAN	LARC/D S MCDUGAL	31-Atmos Sci
B A ALBRECHT	....T L OWENS	

**NAG 1-1409 Pennsylvania State Univ. - Univ. Park 6949**  
 UARS CORRELATIVE MEASUREMENTS OF WATER VAPOR IN THE  
 MIDDLE ATMOSPHERE BY GROUND-BASED MICROWAVE

Period	Obligations	
03/04/1992-03/02/1993	FY93: \$1	TOTAL: \$64,001
Prin. Invest.	NASA Tech. Officer	CASE Category
J J OLIVERO	LARC/J G WELLS	31-Atmos Sci
C L CROSKY		

**NAG 2-484 Pennsylvania State Univ. - Univ. Park 6956**  
 INVESTIGATION OF THE FLOW INSTABILITY ASSOCIATED WA  
 GROUND VORTEX

Period	Obligations	
10/01/1987-07/31/1992	FY93: \$0	TOTAL: \$219,250
Prin. Invest.	NASA Tech. Officer	CASE Category
J M CIMBALA	ARC/D BELLAVIA	41-Aero Engr
M L BILLET		

**NAG 1-1412 Pennsylvania State Univ. - Univ. Park 6950**  
 DEVELOPMENT OF A NEW OPTICAL INSTRUMENT FOR TURBULENCE  
 MEASUREMENTS

Period	Obligations	
03/24/1992-03/22/1994	FY93: \$70,000	TOTAL: \$138,000
Prin. Invest.	NASA Tech. Officer	CASE Category
G S SETTLES	LARC/L M WEINSTEIN	41-Aero Engr

**NAG 2-575 Pennsylvania State Univ. - Univ. Park 6957**  
 SUPERSONIC SHOCK WAVE-VORTEX INTERACTION

Period	Obligations	
05/16/1989-09/30/1992	FY93: \$0	TOTAL: \$192,110
Prin. Invest.	NASA Tech. Officer	CASE Category
G S SETTLES	ARC/C C HORSTMAN	41-Aero Engr
	....J G MARVIN	

**NAG 1-1417 Pennsylvania State Univ. - Univ. Park 6951**  
 SYNTHESIS OF ROBUST AND RELIABLE CONTROLLERS FOR  
 FLEXIBLE SPACE STRUCTURES WITH UNCERTAIN PARAMETER

Period	Obligations	
04/01/1992-09/13/1993	FY93: \$0	TOTAL: \$15,825
Prin. Invest.	NASA Tech. Officer	CASE Category
A RAY	LARC/K B LIM	42-Astro Engr

**NAG 2-751 Pennsylvania State Univ. - Univ. Park 6958**  
 LABORATORY INVESTIGATIONS OF THE MICROPHYSICS AND C  
 HEMISTRY OF AQUEOUS PARTICLES TYPICAL OF THE ....

Period	Obligations	
12/13/1991-10/31/1993	FY93: \$100,000	TOTAL: \$197,588
Prin. Invest.	NASA Tech. Officer	CASE Category
W H BRUNE	ARC/E P CONDON	31-Atmos Sci
D LAMB		
B KENDALL		

**NAG 1-1441 Pennsylvania State Univ. - Univ. Park 6952**  
 EEG AND CHAOS: DESCRIPTION OF UNDERLYING DYNAMICS AND  
 ITS RELATION TO DISSOCIATIVE STATES

Period	Obligations	
06/25/1992-12/31/1993	FY93: \$0	TOTAL: \$37,619
Prin. Invest.	NASA Tech. Officer	CASE Category
M J RAY	LARC/A T POPE	69-Psych, NEC

**NAG 2-781 Pennsylvania State Univ. - Univ. Park 6959**  
 EXPERIMENTS ON CROSSING-SHOCK WAVE-BOUNDARY LAYER  
 INTERACTIONS IN SUPPORT OF CFD CODE VALIDATION

Period	Obligations	
05/14/1992-06/14/1993	FY93: \$0	TOTAL: \$75,000
Prin. Invest.	NASA Tech. Officer	CASE Category
G S SETTLES	ARC/C C HORSTMAN	41-Aero Engr
	....J G MARVIN	

**NAG 1-1479 Pennsylvania State Univ. - Univ. Park 6953**  
 COMPUTATIONAL AEROACOUSTICS AND NUMERICAL SIMULATION  
 OF SUPERSONIC JETS NLPN 92-1121

Period	Obligations	
02/25/1993-02/24/1994	FY93: \$94,391	TOTAL: \$94,391
Prin. Invest.	NASA Tech. Officer	CASE Category
P J MORRIS	LARC/W E ZORUMSKI	41-Aero Engr
L N LONG		

**NAG 2-826 Pennsylvania State Univ. - Univ. Park 6960**  
 PARTICIPATION AS MISSION SCIENTIST FOR THE SPADEII MISSION

Period	Obligations	
02/22/1993-12/31/1993	FY93: \$30,000	TOTAL: \$30,000
Prin. Invest.	NASA Tech. Officer	CASE Category
W BRUNE	ARC/E CONDON	31-Atmos Sci

**NASA'S UNIVERSITY PROGRAM**  
**PENNSYLVANIA (Continued)**

**NAG 2-867 Pennsylvania State Univ. - Univ. Park 6961**  
 ADVANCED METHODS FOR COMPUTATIONAL ELECTROMAGNETIC  
 S: FINITE DIFFERENT TIME DOMAIN

Period	Obligations	
08/11/1993-10/14/1994	FY93: \$138,313	TOTAL: \$138,313
Prin. Invest.	NASA Tech. Officer	CASE Category
R J LUEBBERS	ARC/A C WOO	45-Elec Engr
L N LONG	..../M J SCHUH	

**NAG 3-1168 Pennsylvania State Univ. - Univ. Park 6968**  
 COMPUT AND TURLBUL MODELING FOR THE PRED OF UNSTEADY  
 FLOW FIELD DUE TO ROTOR/STATOR INTERACT IN TURBS

Period	Obligations	
05/10/1990-04/30/1994	FY93: \$32,545	TOTAL: \$179,833
Prin. Invest.	NASA Tech. Officer	CASE Category
B LAKSHMINARAYANA	LERC/P M SOCKOL	41-Aero Engr

**NAG 3-555 Pennsylvania State Univ. - Univ. Park 6962**  
 3-D FLOW FIELD IN A TURBINE NOZZLE AND ROTOR BLADE  
 ROWS

Period	Obligations	
06/18/1984-01/31/1994	FY93: \$61,000	TOTAL: \$540,562
Prin. Invest.	NASA Tech. Officer	CASE Category
B LAKSHMINARAYANA	LERC/R J BOYLE	41-Aero Engr
	..../R E GAUGLER	

**NAG 3-1222 Pennsylvania State Univ. - Univ. Park 6969**  
 EXPERIMENTAL INVESTIGATION OF SPANWISE MIXING PHEN  
 OMENA AND 3D FLOW FIELD IN MULTISTAGE COMPRESSORS

Period	Obligations	
12/19/1990-12/14/1993	FY93: \$54,000	TOTAL: \$156,000
Prin. Invest.	NASA Tech. Officer	CASE Category
B LAKSHMINARAYANA	LERC/A J STRAZISAR	41-Aero Engr
	..../J J ADAMCZYK	

**NAG 3-989 Pennsylvania State Univ. - Univ. Park 6963**  
 A LIQUID CRYSTAL BASED DIGITAL

Period	Obligations	
02/06/1989-10/30/1993	FY93: \$0	TOTAL: \$121,490
Prin. Invest.	NASA Tech. Officer	CASE Category
C CAMCI	LERC/S A HIPPENSTEELE	46-Mech Engr
	..../C M SPUCKLER	

**NAG 3-1225 Pennsylvania State Univ. - Univ. Park 6970**  
 HIGH TEMPERATURE SENSOR/MICROPHONE DEVELOPMENT FOR  
 ACTIVE NOISE CONTROL

Period	Obligations	
01/03/1991-11/30/1993	FY93: \$60,000	TOTAL: \$180,000
Prin. Invest.	NASA Tech. Officer	CASE Category
T R SHROUT	LERC/D L NG	47-Materials Engr
	..../W D WILLIAMS	

**NAG 3-991 Pennsylvania State Univ. - Univ. Park 6964**  
 CHEMICAL KINETICS OF AIR PROPULSION

Period	Obligations	
02/28/1989-04/25/1994	FY93: \$82,289	TOTAL: \$375,317
Prin. Invest.	NASA Tech. Officer	CASE Category
M Y FRENKLACH	LERC/M J RABINOWITZ	12-Chemistry
	..../E A LEZBERG	

**NAG 3-1240 Pennsylvania State Univ. - Univ. Park 6971**  
 FATIGUE MITIGATION CONTROL OF SPACE PROPULSION SYS TEMS  
 FOR HIGH PERFORMANCE AND EXTENDED LIFE

Period	Obligations	
02/21/1991-01/21/1994	FY93: \$82,349	TOTAL: \$276,249
Prin. Invest.	NASA Tech. Officer	CASE Category
A RAY	LERC/C F LOROUZO	46-Mech Engr
R B BHAGAT	..../W C MERRILL	
M CARPINO		

**NAG 3-1020 Pennsylvania State Univ. - Univ. Park 6965**  
 FLOWFIELD ANALYSIS OF LOW REYNOLDS NUMBER ROCKET E  
 NGINES

Period	Obligations	
03/27/1989-01/14/1994	FY93: \$25,000	TOTAL: \$224,952
Prin. Invest.	NASA Tech. Officer	CASE Category
C L MERKLE	LERC/P F PENKO	41-Aero Engr
	..../S J SCHNEIDER	

**NAG 3-1287 Pennsylvania State Univ. - Univ. Park 6972**  
 THE GRAVITATIONAL ROLE IN LIQUID PHASE SINTERING

Period	Obligations	
07/03/1991-10/30/1993	FY93: \$324,000	TOTAL: \$524,000
Prin. Invest.	NASA Tech. Officer	CASE Category
R M GERMAN	LERC/R L DEWITT	47-Materials Engr

**NAG 3-1044 Pennsylvania State Univ. - Univ. Park 6966**  
 IGNITION AND COMBUSTION CHARACTERICTICS FO METALLIZE D  
 PROPELLANTS

Period	Obligations	
05/30/1989-05/31/1994	FY93: \$18,000	TOTAL: \$204,219
Prin. Invest.	NASA Tech. Officer	CASE Category
S R TURNS	LERC/B PALASZEWSKI	46-Mech Engr

**NAG 3-1309 Pennsylvania State Univ. - Univ. Park 6973**  
 THE STABILITY OF A COMPRESSIBLE BOUNDARY LAYER WIT HIN  
 A HIGH-AREA-RATIO NOZZLE

Period	Obligations	
01/15/1992-12/09/1993	FY93: \$0	TOTAL: \$20,000
Prin. Invest.	NASA Tech. Officer	CASE Category
L L PAULEY	LERC/R S JANKOVSKY	49-Engr, NEC

**NAG 3-1052 Pennsylvania State Univ. - Univ. Park 6967**  
 ANALYSIS OF FOIL BEARINGS FOR HIGH SPEED OPERATION IN  
 CRYOGENIC APPLICATIONS

Period	Obligations	
06/07/1989-10/31/1993	FY93: \$60,052	TOTAL: \$255,077
Prin. Invest.	NASA Tech. Officer	CASE Category
M CARPINO	LERC/J F WALKER	46-Mech Engr

**NAG 3-1341 Pennsylvania State Univ. - Univ. Park 6974**  
 ANALYSIS OF REGEN COOLING OF ROCKET ENGINE COMBUST  
 ORS

Period	Obligations	
05/08/1992-11/24/1993	FY93: \$23,000	TOTAL: \$43,000
Prin. Invest.	NASA Tech. Officer	CASE Category
G S DULIKRAVICH	LERC/K J BREISACHER	42-Astro Engr
C L MERKLE		



**NASA'S UNIVERSITY PROGRAM**  
**PENNSYLVANIA (Continued)**

**NAG 5-1786 Pennsylvania State Univ. - Univ. Park 6990**  
 X-RAY SHADOWS AND THE ORIGIN OF THE GALACTIC DIFFUSE  
 X-RAY BACKGROUND AND ANALYSIS OF THE ROSAT OBS.  

Period	Obligations	
10/16/1991-10/31/1993	FY93: \$44,000	TOTAL: \$109,000
Prin. Invest.	NASA Tech. Officer	CASE Category
D N BURROWS	GSFC/R PETRE	11-Astronomy

**NAG 5-1810 Pennsylvania State Univ. - Univ. Park 6991**  
 NASA GODDARD EARTH SCIENCES GRADUATE STUDENT PROGRAM  

Period	Obligations	
09/23/1991-09/30/1993	FY93: \$22,000	TOTAL: \$44,000
Prin. Invest.	NASA Tech. Officer	CASE Category
G G MACE	GSFC/D O STARR	31-Atmos Sci
T P ACKERMAN	....F EINAUDI	

**NAG 5-1831 Pennsylvania State Univ. - Univ. Park 6992**  
 QUIESCENT PROMINENCES IN ECLIPSING STARS  

Period	Obligations	
11/22/1991-11/30/1992	FY93: \$0	TOTAL: \$12,000
Prin. Invest.	NASA Tech. Officer	CASE Category
L W RAMSEY	GSFC/D WEST	11-Astronomy

**NAG 5-1898 Pennsylvania State Univ. - Univ. Park 6993**  
 X-RAY LUMINOSITY AND SPECTRAL CHARACTERISTICS OF F K  
 COMAE  

Period	Obligations	
02/20/1992-02/28/1994	FY93: \$10,000	TOTAL: \$33,215
Prin. Invest.	NASA Tech. Officer	CASE Category
L W RAMSEY	GSFC/R PETRE	11-Astronomy

**NAG 5-1899 Pennsylvania State Univ. - Univ. Park 6994**  
 VARIABILITY IN THE MULTI-COMPONENT X-RAY SPECTRA OF  
 AGN  

Period	Obligations	
02/20/1992-02/28/1993	FY93: \$15,000	TOTAL: \$35,000
Prin. Invest.	NASA Tech. Officer	CASE Category
F A CORDOVA	GSFC/R PETRE	11-Astronomy

**NAG 5-1909 Pennsylvania State Univ. - Univ. Park 6995**  
 THREE DIMENSIONAL STRUCTURE AND DEFORMATION OF TRANSFORM  
 PLATE BOUNDARIES: GEODETIC AND MODELING.  

Period	Obligations	
02/24/1992-02/28/1994	FY93: \$52,000	TOTAL: \$102,000
Prin. Invest.	NASA Tech. Officer	CASE Category
K P FURLONG	GSFC/B G BILLS	32-Geological Sci

**NAG 5-1946 Pennsylvania State Univ. - Univ. Park 6996**  
 THE ULTRAVIOLET CONTINUUM OF THE SOFTEST X-RAY-EMIITTING  
 AGN  

Period	Obligations	
03/16/1992-03/31/1993	FY93: \$0	TOTAL: \$18,000
Prin. Invest.	NASA Tech. Officer	CASE Category
F A CORDOVA	GSFC/D WEST	11-Astronomy

**NAG 5-1950 Pennsylvania State Univ. - Univ. Park 6997**  
 SEARCH FOR GALACTIC CORONAE  

Period	Obligations	
03/18/1992-03/31/1993	FY93: \$0	TOTAL: \$15,000
Prin. Invest.	NASA Tech. Officer	CASE Category
G P GARMIRE	GSFC/R PETRE	11-Astronomy

**NAG 5-1959 Pennsylvania State Univ. - Univ. Park 6998**  
 SEARCH FOR INVERSE COMPTON X-RAYS FROM THE LOBES OF  
 FORYNAX A X-RAYS FROM RADIO GALAXIES STRADDLING  

Period	Obligations	
03/30/1992-04/14/1994	FY93: \$0	TOTAL: \$39,928
Prin. Invest.	NASA Tech. Officer	CASE Category
F D FEIGELSON	GSFC/R PETRE	11-Astronomy

**NAG 5-1968 Pennsylvania State Univ. - Univ. Park 6999**  
 FIFTH EPOCH DOPPLER IMAGING OBSERVATIONS OF AR LAC  
 ERTAE AND SIMULTANEOUS X-RAY AND ULTRA-VIOLET.  

Period	Obligations	
04/09/1992-04/14/1994	FY93: \$0	TOTAL: \$31,000
Prin. Invest.	NASA Tech. Officer	CASE Category
J E NEFF	GSFC/D WEST	11-Astronomy

**NAG 5-2118 Pennsylvania State Univ. - Univ. Park 7000**  
 THE SPATIALLY-RESOLVED STRUCTURES OF THE V711 TAU  
 STELLAR ENVIRONMENT  

Period	Obligations	
10/09/1992-01/31/1994	FY93: \$10,000	TOTAL: \$10,000
Prin. Invest.	NASA Tech. Officer	CASE Category
J E NEFF	GSFC/D WEST	11-Astronomy

**NAG 5-2125 Pennsylvania State Univ. - Univ. Park 7001**  
 ADVANCED MODELS OF ACCRETION DISK ATMOSPHERES AND  
 SPECTRA FOR CLOSE BINARY STARS  

Period	Obligations	
10/26/1992-10/31/1993	FY93: \$41,300	TOTAL: \$41,300
Prin. Invest.	NASA Tech. Officer	CASE Category
WADE	GSFC/D WEST	11-Astronomy

**NAG 5-2144 Pennsylvania State Univ. - Univ. Park 7002**  
 A SYSTEMATIC STUDY OF X-RAY EMISSION FROM ACTIVE  
 SEMI-DETACHED SYSTEMS  

Period	Obligations	
11/23/1992-11/30/1993	FY93: \$15,000	TOTAL: \$15,000
Prin. Invest.	NASA Tech. Officer	CASE Category
R A WADE	GSFC/R PETRE	11-Astronomy

**NAG 5-2214 Pennsylvania State Univ. - Univ. Park 7003**  
 ORBITAL PERIOD CHANGES IN THE LOW MASS X-RAY BINARY  
 EXO 0748-676  

Period	Obligations	
02/18/1993-02/28/1994	FY93: \$15,000	TOTAL: \$15,000
Prin. Invest.	NASA Tech. Officer	CASE Category
R H CORBET	GSFC/R PETRE	11-Astronomy

**NASA'S UNIVERSITY PROGRAM**  
**PENNSYLVANIA (Continued)**

**NAG 5-5015**      **Pennsylvania State Univ. - Univ. Park**      **7004**  
 COORDINATED STUDIES OF EQUATORIAL MESOSPHERIC AND  
 LOWER THERMOSPHERIC DYNAMICS BY ROCKET AND CADRE  

<i>Period</i>	<i>Obligations</i>	
05/28/1993-12/31/1993	FY93: \$40,000	TOTAL: \$40,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
J D RUSSELL	GSFC/L J EARLY	13-Physics
	....R H PLESS	

**NAG 6-7**      **Pennsylvania State Univ. - Univ. Park**      **7005**  
 INVESTIGATE INFLUENCE OF AURORAL ENERGISTICS AND  
 ELECTRODYNAMIC COUPLING ON MIDDLE ATMOS ELEC PAR  

<i>Period</i>	<i>Obligations</i>	
09/01/1980-06/30/1994	FY93: \$0	TOTAL: \$1,000,460
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
J D MITCHELL	GSFC/L J EARLY	19-Phys Sci, NEC
N C MAYNARD	....R H PLESS	
R A GOLDBERG		

**NAG 8-136**      **Pennsylvania State Univ. - Univ. Park**      **7006**  
 SUPERCRITICAL DROPLET COMBUSTION WITH APPLICATION TO  
 LIQUID-PROPELLANT ROCKET PERFORMANCE AND INSTABIL  

<i>Period</i>	<i>Obligations</i>	
03/22/1991-05/11/1993	FY93: \$33,868	TOTAL: \$160,642
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
V YANG	MSFC/M ROCKER	41-Aero Engr
	....S D BAI	

**NAG 8-160**      **Pennsylvania State Univ. - Univ. Park**      **7007**  
 DROPLET-TURBULENCE INTERSECTION OF SPRAYS  

<i>Period</i>	<i>Obligations</i>	
06/04/1990-07/02/1993	FY93: \$0	TOTAL: \$61,181
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
D A SANTARICCA	MSFC/K W GROSS	49-Engr, NEC
	....H P TRINH	

**NAG 8-174**      **Pennsylvania State Univ. - Univ. Park**      **7008**  
 COMBUSTION OF LOX WITH HYDROGEN UNDER SUBCRITICAL  
 CRITICAL AND SUPERCRITICAL CONDITIONS  

<i>Period</i>	<i>Obligations</i>	
01/31/1991-10/29/1993	FY93: \$0	TOTAL: \$154,920
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
K K KUO	MSFC/K W GROSS	49-Engr, NEC
W H HSIEH		
F B CHEUNG		

**NAG 8-186**      **Pennsylvania State Univ. - Univ. Park**      **7009**  
 CONT. OF STUDIES OF X-RAY BINARIES WITH GINGA  

<i>Period</i>	<i>Obligations</i>	
03/28/1991-09/27/1992	FY93: \$0	TOTAL: \$47,967
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
R H CORBET	MSFC/J VARGAS	11-Astronomy

**NAG 8-231**      **Pennsylvania State Univ. - Univ. Park**      **7010**  
 X-RAY PULSATORS: PULSE PHASE SPECTROSCOPY  

<i>Period</i>	<i>Obligations</i>	
03/23/1992-03/22/1994	FY93: \$0	TOTAL: \$43,700
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
R H CORBET	MSFC/J VARGAS	31-Atmos Sci
P I MESZAROS		

**NAG 8-288**      **Pennsylvania State Univ. - Univ. Park**      **7011**  
 CONTINUATION OF STUDIES  

<i>Period</i>	<i>Obligations</i>	
05/12/1993-05/11/1994	FY93: \$36,246	TOTAL: \$36,246
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
R CORBIN	MSFC/J VARGAS	41-Aero Engr

**NAG 8-758**      **Pennsylvania State Univ. - Univ. Park**      **7012**  
 FINAL ARCHIVING OF HEAO-1 DATA PRODUCTS AND SOFTWARE.  

<i>Period</i>	<i>Obligations</i>	
01/01/1989-01/01/1993	FY93: \$3	TOTAL: \$196,327
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
J A NOUSEK	MSFC/D HAVRISIK	11-Astronomy

**NAG 8-780**      **Pennsylvania State Univ. - Univ. Park**      **7013**  
 STRATIFORM CLOUD AND INT ERACTION WITH ATMOS- PHERIC  
 MOTIONS  

<i>Period</i>	<i>Obligations</i>	
06/09/1989-12/14/1992	FY93: \$0	TOTAL: \$182,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
J CLARK	MSFC/J W KAUFMAN	31-Atmos Sci
J A DUTTON	....F W LESLIE	
H N SHIRER		

**NAG 8-807**      **Pennsylvania State Univ. - Univ. Park**      **7014**  
 ELECTROPHORETIC SEPARA- TION OF CELLS  

<i>Period</i>	<i>Obligations</i>	
12/11/1989-12/17/1992	FY93: \$0	TOTAL: \$377,780
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
W C HYMER	MSFC/R C DARTY	54-Env Biology
A MASTRO		

**NAG 8-879**      **Pennsylvania State Univ. - Univ. Park**      **7015**  
 ANALYSIS FOR THERMAL-CHEMICAL DECOMPOSITION OF COM  

<i>Period</i>	<i>Obligations</i>	
07/23/1991-07/22/1993	FY93: \$70,000	TOTAL: \$169,877
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
N J SALAMON	MSFC/M STUCKER	43-Chem Engr
	....R AHMAD	

**NAG 8-903**      **Pennsylvania State Univ. - Univ. Park**      **7016**  
 ANALYSIS OF THERMAL CYCLING EFFECTS ON THE LARGE  
 SEGEMENTED MIRROW FOR THE HIGH EARTH ORBIT TELESCO  

<i>Period</i>	<i>Obligations</i>	
02/05/1992-12/31/1993	FY93: \$0	TOTAL: \$56,430
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
R C THOMPSON	MSFC/C CARRINGTON	31-Atmos Sci

**NAG 8-953**      **Pennsylvania State Univ. - Univ. Park**      **7017**  
 ELECTROPHORETIC SEPARATION OF CELLS AND PARTICLES FROM  
 RAT PITUITARY AND RAT SPLEEN.  

<i>Period</i>	<i>Obligations</i>	
02/19/1993-02/07/1994	FY93: \$196,000	TOTAL: \$196,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
W C HUMER	MSFC/R C DARTY	51-Biological Sci
A M MASTRO		

**NAG 9-379**      **Pennsylvania State Univ. - Univ. Park**      **7018**  
 SIMULATION OF ZERO-GRAVITY LOCOMOTION  

<i>Period</i>	<i>Obligations</i>	
05/17/1989-12/01/1992	FY93: \$1	TOTAL: \$222,373
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
P R CAVANAGH	JSC/V SCHNEIDER	32-Geological Sci

**NASA'S UNIVERSITY PROGRAM**  
**PENNSYLVANIA (Continued)**

**NAGW 1196**      **Pennsylvania State Univ. - Univ. Park**      **7019**  
 CENTER FOR THE COMMERCIAL DEVELOPMENT OF SPACE  
*Period*      *Obligations*  
 10/16/1987-10/31/1993      FY93: \$2,880,000      TOTAL: \$11,194,551  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
 W HYMER      HQ/W A ORAN      99-Multi-Discip  
 A MAESTRO      ....A VILLAMIL

**NAGW 1302**      **Pennsylvania State Univ. - Univ. Park**      **7020**  
 INTERIM SUPPORT FOR MICROWAVE MEASUREMENTS OF  
 MESOPHERIC WATER VA  
*Period*      *Obligations*  
 04/18/1988-12/31/1993      FY93: \$145,000      TOTAL: \$855,342  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
 J OLIVERO      HQ/M J KURYLO      31-Atmos Sci  
 C CROSKY      ....M LUTHER

**NAGW 1356**      **Pennsylvania State Univ. - Univ. Park**      **7021**  
 CENTER FOR SPACE PROPULSION ENGINEERING  
*Period*      *Obligations*  
 07/18/1988-10/31/1993      FY93: \$1,430,000      TOTAL: \$7,077,898  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
 C L MERKLE      HQ/E E VANLANDINGHAM      49-Engr, NEC

**NAGW 1381**      **Pennsylvania State Univ. - Univ. Park**      **7022**  
 ADVANCED HIGH TEMPERATURE COMPOSITE MATERIALS  
*Period*      *Obligations*  
 10/07/1988-10/31/1993      FY93: \$500,000      TOTAL: \$2,406,000  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
 R E TRESSLER      HQ/B F QUIGLEY      47-Materials Engr  
 J R HELLMAN      ....T W CROOKER  
 H T HAHN

**NAGW 1522**      **Pennsylvania State Univ. - Univ. Park**      **7023**  
 STUDIES OF HIGH ENERGY COMPACT SOURCES AND RADIATION  
*Period*      *Obligations*  
 11/30/1988-11/30/1993      FY93: \$82,000      TOTAL: \$339,000  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
 P I MESZAROS      HQ/L J KALUZIENSKI      11-Astronomy  
 ....A N BUNNER

**NAGW 1713**      **Pennsylvania State Univ. - Univ. Park**      **7024**  
 SERVICE CHAIRING THE ASTROPHYSICS MASTER DIRECTORY  
 WORK. GRP.  
*Period*      *Obligations*  
 05/01/1989-12/31/1992      FY93: \$0      TOTAL: \$241,522  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
 J NOUSEK      HQ/J R WEISS      11-Astronomy  
 ....G R RIEGLER

**NAGW 1911**      **Pennsylvania State Univ. - Univ. Park**      **7025**  
 NAGW-1911/PENNSYLVANIA STATE UNIV/CONSTRAINTS IMPOSED  
 BY PALEOENVIRONMENTS ON THE ORIGIN AND EVOLUTION  
*Period*      *Obligations*  
 02/06/1990-09/30/1993      FY93: \$76,244      TOTAL: \$277,546  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
 J F KASTING      HQ/J D RUMMEL      31-Atmos Sci

**NAGW 1920**      **Pennsylvania State Univ. - Univ. Park**      **7026**  
 MULTIWAVELENGTH: AN INTERACTION DATA BASE FOR THE COORDINATION  
 OF MULTIWAVELENGTH PROGRAMS  
*Period*      *Obligations*  
 01/19/1990-09/30/1993      FY93: \$0      TOTAL: \$501,235  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
 F A CORDOVA      HQ/J WEISS      11-Astronomy  
 ....G RIEGLER

**NAGW 2120**      **Pennsylvania State Univ. - Univ. Park**      **7027**  
 MULTI WAVELENGTH AND STATISTICAL RESEARCH IN SPACE  
 ASRTOPHYSICS  
*Period*      *Obligations*  
 06/13/1990-12/31/1993      FY93: \$132,000      TOTAL: \$422,019  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
 E D FEIGELSON      HQ/G S KUTTER      11-Astronomy  
 ....G R RIEGLER

**NAGW 2209**      **Pennsylvania State Univ. - Univ. Park**      **7028**  
 NAGW-2209/PENN STATE UNIV/ASSESSMENTS OF RADIATIVE  
 HEATING NEAR THE TROPICAL TROPOPAUSE  
*Period*      *Obligations*  
 09/17/1990-10/31/1992      FY93: \$0      TOTAL: \$112,388  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
 T P ACKERMAN      HQ/R D MCPETERS      31-Atmos Sci  
 ....M J PRATHER

**NAGW 2280**      **Pennsylvania State Univ. - Univ. Park**      **7029**  
 ORIGINS OF INTERSTELLAR AND SOLAR SYSTEM CARBONACEOUS  
 MATERIALS  
*Period*      *Obligations*  
 02/22/1991-10/31/1993      FY93: \$45,000      TOTAL: \$135,000  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
 E D FEIGELSON      HQ/J A NUTH      19-Phys Sci, NEC

**NAGW 2603**      **Pennsylvania State Univ. - Univ. Park**      **7030**  
 SPATIAL STRUCTURE AND DYNAMICS OF OUTER STELLAR ATMOSPHERES  
*Period*      *Obligations*  
 08/06/1991-04/30/1994      FY93: \$88,300      TOTAL: \$264,300  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
 J E NEFF      HQ/G S KUTTER      11-Astronomy  
 ....G R RIEGLER

**NAGW 2647**      **Pennsylvania State Univ. - Univ. Park**      **7031**  
 NAGW-2647/PENNSYLVANIA STATE UNIV/COMBINING REMOTE AND  
 SURFACE MEASUREMENT TO ESTIMATE SOIL MOISTURE  
*Period*      *Obligations*  
 08/22/1991-05/31/1993      FY93: \$0      TOTAL: \$129,772  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
 T N CARLSON      HQ/G ASRAR      39-Env Sci, NEC  
 ....D E WICKLAND

**NAGW 2670**      **Pennsylvania State Univ. - Univ. Park**      **7032**  
 SECOND AIRBORNE ARCTIC STRATOSPHERIC EXPEDITION (ASEII)  
*Period*      *Obligations*  
 08/20/1991-09/30/1994      FY93: \$0      TOTAL: \$154,268  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
 W H BRUNE      HQ/M J KURYLO      31-Atmos Sci  
 ....R F HAMPSON

**NASA'S UNIVERSITY PROGRAM**  
**PENNSYLVANIA (Continued)**

**NAGW 2686 Pennsylvania State Univ. - Univ. Park 7033**  
 NAGW-2686/PENN STATE UNIV/GLOBAL WATER CYCLE: EXTENSION  
 ACROSS THE EARTH SCIENCES  
*Period Obligations*  
 08/02/1991-12/31/1993 FY93: \$1,780,000 TOTAL: \$3,750,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 E J BARRON HQ/J C DODGE 31-Atmos Sci  
 ....W S WILSON

**NAGW 2712 Pennsylvania State Univ. - Univ. Park 7034**  
 PENNSYLVANIA STATE PARTICIPATING IN THE MINIMETER WAVE  
 ATMOSPHERIC SOUNDER EXPERIMENT IN THE SPACE  
*Period Obligations*  
 09/04/1991-06/30/1993 FY93: \$0 TOTAL: \$93,312  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J J OLIVERO HQ/J A KAYE 31-Atmos Sci  
 ....R E MURPHY

**NAGW 3136 Pennsylvania State Univ. - Univ. Park 7035**  
 NAGW-3136/PENN STATE UNIV/RESEARCH AND PROJECT  
 ACTIVITIES IN ASTROPHYSICS  
*Period Obligations*  
 07/23/1992-06/30/1993 FY93: \$0 TOTAL: \$75,379  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D W WEEDMAN HQ/L S LAPIANA 11-Astronomy

**NAGW 3159 Pennsylvania State Univ. - Univ. Park 7036**  
 A DETAILED INVESTIGATION INTO THE USE OF PLANETARY  
 NEBULAE AS STANDARD CANDLES  
*Period Obligations*  
 08/10/1992-07/31/1994 FY93: \$69,854 TOTAL: \$132,521  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R CIARDULLO HQ/G R RIEGLER 11-Astronomy

**NAGW 3171 Pennsylvania State Univ. - Univ. Park 7037**  
 ADVANCED SPECTRUM MODELLING OF ACCRETION DISKS FOR  
 CLOSE BINARY STARS  
*Period Obligations*  
 08/14/1992-04/30/1994 FY93: \$82,385 TOTAL: \$165,277  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R WADE HQ/G R RIEGLER 11-Astronomy

**NAGW 3211 Pennsylvania State Univ. - Univ. Park 7038**  
 NAGW-3211/PENN STATE UNIV/MULTIWAVELINK: AN INTERA TIVE  
 DATA BASE FOR THE COORDINATION OF MULTIWAVEL  
*Period Obligations*  
 09/16/1992-07/31/1994 FY93: \$0 TOTAL: \$10,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 F A CORDOVA HQ/F GIOVANE 11-Astronomy  
 ....G R RIEGLER

**NAGW 3333 Pennsylvania State Univ. - Univ. Park 7039**  
 NAGW-3333/PENNSYLVANIA STATE UNIV UP/MECHANISM OF  
 DIFFERENTIAL GROWTH DURING GRAVITROPSIM  
*Period Obligations*  
 01/15/1993-10/31/1993 FY93: \$55,000 TOTAL: \$55,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D J COSGROVE HQ/T W HALSTEAD 51-Biological Sci

**NAGW 3358 Pennsylvania State Univ. - Univ. Park 7040**  
 MICROGRAVITY IN VITRO OF BONE CELLS; FLOW EFFECTS  
*Period Obligations*  
 01/29/1993-12/31/1993 FY93: \$50,000 TOTAL: \$50,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J A FRANGOS HQ/T W HALSTEAD 51-Biological Sci

**NAGW 3372 Pennsylvania State Univ. - Univ. Park 7041**  
 EXPERIMENTAL RHEO. OF THE VENUSIAN LITH.  
*Period Obligations*  
 02/25/1993-12/31/1993 FY93: \$59,600 TOTAL: \$59,600  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S J MACKWELL HQ/J M BOYCE 32-Geological Sci

**NAGW 3405 Pennsylvania State Univ. - Univ. Park 7042**  
 PLANETS AROUND NEUTRON STARS  
*Period Obligations*  
 02/16/1993-02/28/1994 FY93: \$55,000 TOTAL: \$55,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A WOLSZCZAN HQ/J A NUTH 19-Phys Sci, NEC

**NAGW 3415 Pennsylvania State Univ. - Univ. Park 7043**  
 INFRARED SPECTROSCOPY OF JUPITER AND SATURN  
*Period Obligations*  
 03/09/1993-12/31/1993 FY93: \$132,381 TOTAL: \$132,381  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R F KNACKE HQ/H C BRINTON 11-Astronomy

**NAGW 3571 Pennsylvania State Univ. - Univ. Park 7044**  
 THE THEORY OF QSO ABSORPTION LINE SYSTEMS  
*Period Obligations*  
 04/29/1993-12/31/1993 FY93: \$56,499 TOTAL: \$56,499  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J C CHARLTON HQ/R V STACHNIK 11-Astronomy  
 ....E J WEILER

**NAGW 3571 Pennsylvania State Univ. - Univ. Park 7045**  
 MECHANISM OF DIFFERENTIAL GROWTH  
*Period Obligations*  
 02/23/1987-04/30/1993 FY93: \$0 TOTAL: \$293,864  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D J COSGROVE KSC/W KNOTT 39-Env Sci, NEC

**NAS 5-31787 Pennsylvania State Univ. - Univ. Park 7046**  
 DESIGN AND DEVELOPMENT OF DIGITAL PROCESSING UNIT  
*Period Obligations*  
 10/01/1991-09/30/1998 FY93: \$247,000 TOTAL: \$564,600  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 F CORDORA GSFC/R DONNELLY 42-Astro Engr

**NAS 5-31827 Pennsylvania State Univ. - Univ. Park 7047**  
 APPLIED RESEARCH - DEVELOPMENT OF ASTRO D ANALYSIS  
 SOFTWARE  
*Period Obligations*  
 10/28/1991-12/31/1993 FY93: \$73,638 TOTAL: \$185,888  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J NOUSEK GSFC/N WHITE 11-Astronomy



**NASA'S UNIVERSITY PROGRAM**  
**PENNSYLVANIA (Continued)**

**NAS 5-32074 Pennsylvania State Univ. - Univ. Park 7048**  
 ADP - RESEARCH STUDIES/SERVICES REFORMATTING AND  
 RETRIEVAL OF HEAO-1 DATA PRODUCTS  
*Period Obligations*  
 11/24/1992-11/23/1995 FY93: \$75,800 TOTAL: \$75,800  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J A NOUSEK GSFC/R OLIVERSEN 11-Astronomy  
 ....N

**NAS 8-38252 Pennsylvania State Univ. - Univ. Park 7049**  
 AXAF CCD IMAGING SPECTROMETER  
*Period Obligations*  
 06/27/1990-11/30/1999 FY93: \$384,000 TOTAL: \$1,004,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 G P GARMARE MSFC/N B CUMINGS 11-Astronomy

**NAS 8-38861 Pennsylvania State Univ. - Univ. Park 7050**  
 RELIABILITY OF NAVIER-STOKES CODES THROUGH CONVERG  
 ENCE  
*Period Obligations*  
 05/15/1991-11/14/1995 FY93: \$99,000 TOTAL: \$248,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 C C MERKLE MSFC/G A WILHOLD 49-Engr, NEC  
 C S DULIKRAVICH ....E T STEWART

**NAS 8-38862 Pennsylvania State Univ. - Univ. Park 7051**  
 AN EXPERIMENTAL STUDY OF CHARACTERISTIC COMBUSTION  
 DRIVEN FLOW FOR CFD VALIDATION  
*Period Obligations*  
 04/16/1991-04/15/1996 FY93: \$150,000 TOTAL: \$335,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R J SANTORO MSFC/G A WILHOLD 41-Aero Engr  
 ....P K TUCKER

**NAS 8-38867 Pennsylvania State Univ. - Univ. Park 7052**  
 TURBULENCE MODELLING AND COMPUTER OF TURBINE  
 AERODYNAMICS  
*Period Obligations*  
 04/10/1991-04/09/1996 FY93: \$46,000 TOTAL: \$136,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 B LAKSHMINARAYANA MSFC/L GRIFFIN 41-Aero Engr

**NCA 2-544 Pennsylvania State Univ. - Univ. Park 7053**  
 COMPUTATIONAL FLOW SIMULATION OF ARTIFICIAL HEARTS  
*Period Obligations*  
 07/13/1990-06/30/1993 FY93: \$18,953 TOTAL: \$78,953  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J M TARBELL ARC/D KWAK 43-Chem Engr

**NCA 2-769 Pennsylvania State Univ. - Univ. Park 7054**  
 OPTIMIZATION OF THREE-DIMENSIONAL SINGED HYPERSONI C  
 CONFIGURATIONS  
*Period Obligations*  
 11/23/1992-11/30/1994 FY93: \$40,000 TOTAL: \$40,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 G S DULIKRAVICH ARC/J BOWLES 41-Aero Engr

**NCC 2-370 Pennsylvania State Univ. - Univ. Park 7055**  
 MICROGRAVITY-INDUCED EFFECT ON PITUITARY GROWTH  
 HORMONE CELL FUNCTION: A MECHANISM FOR MUSCLE ATRO  
*Period Obligations*  
 11/01/1987-10/31/1993 FY93: \$88,178 TOTAL: \$651,953  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 W C HYMER ARC/C M WINGET 51-Biological Sci  
 R E GRINDELAND ....R W BALLARD  
 D R MORRISON

**NGT 00-030-024 Pennsylvania State Univ. - Univ. Park 7056**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
 12/31/1990-12/31/1992 FY93: \$0 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A ALAM HQ/G ASRAR 39-Env Sci, NEC

**NGT 00-030-040 Pennsylvania State Univ. - Univ. Park 7057**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
 09/16/1991-08/31/1992 FY93: \$0 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J W BAO HQ/D M BUTLER 31-Atmos Sci  
 T T WARNER ....G S WILSON

**NGT 00-030-042 Pennsylvania State Univ. - Univ. Park 7058**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
 09/06/1991-08/31/1993 FY93: \$0 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A M VOGELMANN HQ/D M BUTLER 31-Atmos Sci  
 T P ACKERMAN ....G S WILSON

**NGT 00-030-120 Pennsylvania State Univ. - Univ. Park 7059**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
 10/29/1992-08/31/1994 FY93: \$44,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J H MATHER HQ/G ASRAR 33-Oceanography  
 ....D M BUTLER

**NGT 00-030-122 Pennsylvania State Univ. - Univ. Park 7060**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
 11/02/1992-08/31/1994 FY93: \$44,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 G E TUCKER HQ/G ASRAR 32-Geological Sci  
 ....D M BUTLER

**NGT 00-030-152 Pennsylvania State Univ. - Univ. Park 7061**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
 10/21/1992-08/31/1994 FY93: \$44,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 K L O'BRIEN HQ/G ASRAR 99-Multi-Discip  
 ....D M BUTLER

**NGT 00-040-002 Pennsylvania State Univ. - Univ. Park 7062**  
 NATIONAL SPACE GRANT COLLEGE AND FELLOWSHIP PROGRAM  
*Period Obligations*  
 09/28/1989-01/31/1994 FY93: \$383,000 TOTAL: \$1,580,667  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R DEVON HQ/L T KEFFER 99-Multi-Discip

**NASA'S UNIVERSITY PROGRAM**  
**PENNSYLVANIA (Continued)**

**NGT 00-050-309 Pennsylvania State Univ. - Univ. Park 7063**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  

Period	Obligations	
07/15/1988-07/31/1992	FY93: \$1,324	TOTAL: \$56,619
Prin. Invest.	NASA Tech. Officer	CASE Category
G P GARMIRE	HQ/F C OWENS	11-Astronomy

**NGT 00-050-884 Pennsylvania State Univ. - Univ. Park 7071**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  

Period	Obligations	
05/26/1992-06/30/1994	FY93: \$22,000	TOTAL: \$44,000
Prin. Invest.	NASA Tech. Officer	CASE Category
C L MERKLE	MSFC/F SIX	46-Mech Engr

**NGT 00-050-341 Pennsylvania State Univ. - Univ. Park 7064**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  

Period	Obligations	
08/09/1988-05/31/1992	FY93: \$0	TOTAL: \$69,000
Prin. Invest.	NASA Tech. Officer	CASE Category
M D MAUGHMER	HQ/F C OWENS	41-Aero Engr

**NGT 00-050-952 Pennsylvania State Univ. - Univ. Park 7072**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  

Period	Obligations	
07/14/1992-08/14/1994	FY93: \$22,000	TOTAL: \$44,000
Prin. Invest.	NASA Tech. Officer	CASE Category
G S SETTLES	ARC/M MOORE	46-Mech Engr

**NGT 00-050-393 Pennsylvania State Univ. - Univ. Park 7065**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  

Period	Obligations	
10/06/1988-08/28/1993	FY93: \$0	TOTAL: \$58,000
Prin. Invest.	NASA Tech. Officer	CASE Category
K HEID	HQ/F C OWENS	99-Multi-Discip

**NGT 00-050-953 Pennsylvania State Univ. - Univ. Park 7073**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  

Period	Obligations	
06/26/1992-08/14/1993	FY93: \$0	TOTAL: \$22,000
Prin. Invest.	NASA Tech. Officer	CASE Category
V YANG	MSFC/F SIX	46-Mech Engr

**NGT 00-050-400 Pennsylvania State Univ. - Univ. Park 7066**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  

Period	Obligations	
09/06/1989-08/14/1992	FY93: \$0	TOTAL: \$62,000
Prin. Invest.	NASA Tech. Officer	CASE Category
G S SETTLES	HQ/F C OWENS	46-Mech Engr

**NGT 00-051-010 Pennsylvania State Univ. - Univ. Park 7074**  
 NGT-51010/PENNSYLVANIA STATE UNIV/GRADUATE STUDENT RESEARCHERS PROGRAM  

Period	Obligations	
09/23/1992-08/23/1993	FY93: \$0	TOTAL: \$22,000
Prin. Invest.	NASA Tech. Officer	CASE Category
M K HEID	HQ/D GALLAWAY	76-Sociology

**NGT 00-050-495 Pennsylvania State Univ. - Univ. Park 7067**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  

Period	Obligations	
09/13/1989-08/14/1992	FY93: \$0	TOTAL: \$62,000
Prin. Invest.	NASA Tech. Officer	CASE Category
G S SETTLES	HQ/F C OWENS	46-Mech Engr

**NGT 00-051-016 Pennsylvania State Univ. - Univ. Park 7075**  
 GRADUATE STUDENT RESEARCHERS PROGRAM  

Period	Obligations	
06/23/1993-08/14/1994	FY93: \$22,000	TOTAL: \$22,000
Prin. Invest.	NASA Tech. Officer	CASE Category
M K HEID	HQ/D V GALLAWAY	21-Mathematics

**NGT 00-050-532 Pennsylvania State Univ. - Univ. Park 7068**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  

Period	Obligations	
09/26/1989-08/14/1992	FY93: \$0	TOTAL: \$62,000
Prin. Invest.	NASA Tech. Officer	CASE Category
V YANG	HQ/F C OWENS	41-Aero Engr

**NGT 00-051-106 Pennsylvania State Univ. - Univ. Park 7076**  
 GRADUATE STUDENT RESEARCHERS PROGRAM  

Period	Obligations	
07/14/1993-08/31/1994	FY93: \$22,000	TOTAL: \$22,000
Prin. Invest.	NASA Tech. Officer	CASE Category
G KOODMANN	HQ/J T LYNCH	41-Aero Engr

**NGT 00-050-706 Pennsylvania State Univ. - Univ. Park 7069**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  

Period	Obligations	
05/13/1991-06/30/1994	FY93: \$22,000	TOTAL: \$66,000
Prin. Invest.	NASA Tech. Officer	CASE Category
A RAY	HQ/F C OWENS	46-Mech Engr

**NGT 00-051-118 Pennsylvania State Univ. - Univ. Park 7077**  
 GRADUATE STUDENT RESEARCHERS PROGRAM  

Period	Obligations	
05/24/1993-06/30/1994	FY93: \$22,000	TOTAL: \$22,000
Prin. Invest.	NASA Tech. Officer	CASE Category
L N LONG	LARC/E PRIOR	41-Aero Engr

**NGT 00-050-803 Pennsylvania State Univ. - Univ. Park 7070**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  

Period	Obligations	
07/01/1991-07/31/1994	FY93: \$22,000	TOTAL: \$64,227
Prin. Invest.	NASA Tech. Officer	CASE Category
G P GARMIRE	HQ/F C OWENS	11-Astronomy

**NGT 00-051-119 Pennsylvania State Univ. - Univ. Park 7078**  
 GRADUATE STUDENT RESEARCHERS PROGRAM  

Period	Obligations	
06/09/1993-06/30/1994	FY93: \$22,000	TOTAL: \$22,000
Prin. Invest.	NASA Tech. Officer	CASE Category
V YANG	MSFC/F SIX	46-Mech Engr

**NASA'S UNIVERSITY PROGRAM**  
**PENNSYLVANIA (Continued)**

**NGT 00-051-125 Pennsylvania State Univ. - Univ. Park 7079**  
 GRADUATE STUDENT RESEARCHERS PROGRAM  

<i>Period</i>	<i>Obligations</i>	
07/07/1993-07/31/1994	FY93: \$22,000	TOTAL: \$22,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
D BURROWS	HQ/D HOLLAND	13-Physics

**NGT 00-070-328 Pennsylvania State Univ. - Univ. Park 7086**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
 MINORITY FOCUS PROGRAM  

<i>Period</i>	<i>Obligations</i>	
07/01/1993-06/30/1994	FY93: \$22,000	TOTAL: \$22,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
J FRANGOS	HQ/D K RUSSELL	43-Chem Engr

**NGT 00-051-131 Pennsylvania State Univ. - Univ. Park 7080**  
 GRADUATE STUDENT RESEARCHERS PROGRAM  

<i>Period</i>	<i>Obligations</i>	
06/22/1993-06/30/1994	FY93: \$22,000	TOTAL: \$22,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
H R ALLOCK	LERC/F MONTEGANI	12-Chemistry

**NGT 00-090-130 Pennsylvania State Univ. - Univ. Park 7087**  
 UNDERGRADUATE STUDENT RESEARCHERS PROGRAM (UMF)  

<i>Period</i>	<i>Obligations</i>	
09/26/1992-08/14/1993	FY93: \$12,000	TOTAL: \$12,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
D DAVIS	HQ/D K RUSSELL	99-Multi-Discip

**NGT 00-051-165 Pennsylvania State Univ. - Univ. Park 7081**  
 GRADUATE STUDENT RESEARCHERS PROGRAM  

<i>Period</i>	<i>Obligations</i>	
06/22/1993-08/14/1994	FY93: \$22,000	TOTAL: \$22,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
D A SANTAVICCA	MSFC/F SIX	46-Mech Engr

**NAG 9-476 Phil College of Pharmacy & Science 7088**  
 ESTABLISH GRANT  

<i>Period</i>	<i>Obligations</i>	
10/11/1990-05/31/1993	FY93: \$1,249	TOTAL: \$11,939
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
K J TIETZE	JSC/S GOLDSTEIN	56-Medical Sciences

**NGT 00-070-129 Pennsylvania State Univ. - Univ. Park 7082**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
 MINORITY FOCUS PROGRAM  

<i>Period</i>	<i>Obligations</i>	
09/06/1989-06/30/1992	FY93: \$0	TOTAL: \$62,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
R M STERN	HQ/F C OWENS	69-Psych, NEC

**NAG 5-689 St. Vincent College & Seminary 7089**  
 MODIFICATIONS OF AIRBORNE OCEANOGRAPHIC LIDAR FOR THE  
 LONG RAND P-3 MISSIONS  

<i>Period</i>	<i>Obligations</i>	
02/28/1992-08/31/1993	FY93: \$0	TOTAL: \$44,440
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
R E BERRY	GSFC/W B KRABILL	19-Phys Sci, NEC
	....F E HOGE	

**NGT 00-070-204 Pennsylvania State Univ. - Univ. Park 7083**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
 MINORITY FOCUS PROGRAM  

<i>Period</i>	<i>Obligations</i>	
08/10/1990-07/31/1994	FY93: \$0	TOTAL: \$66,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
E D FEIGELSON	HQ/F C OWENS	11-Astronomy

**NAG 8-199 Susquehanna University 7090**  
 JOVE  

<i>Period</i>	<i>Obligations</i>	
05/29/1991-06/03/1994	FY93: \$21,000	TOTAL: \$61,800
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
R KOZLOWSKI	MSFC/N F SIX	11-Astronomy
	....C R CHAPPELL	

**NAG 5-1152 Swarthmore College 7091**  
 THE THREE-DIMENSIONAL STRUCTURE OF THE INFRARED  
 CIRRUS  

<i>Period</i>	<i>Obligations</i>	
06/15/1989-06/14/1992	FY93: \$0	TOTAL: \$111,500
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
J E GAUSTAD	GSFC/D K WEST	11-Astronomy

**NGT 00-070-257 Pennsylvania State Univ. - Univ. Park 7084**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
 MINORITY FOCUS PROGRAM  

<i>Period</i>	<i>Obligations</i>	
05/15/1992-06/30/1994	FY93: \$22,000	TOTAL: \$44,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
R J SANFORO	MSFC/F SIX	46-Mech Engr

**NAG 5-1168 University of Pennsylvania 7092**  
 HOT, MASSIVE BINARIES  

<i>Period</i>	<i>Obligations</i>	
07/15/1989-01/31/1994	FY93: \$5,000	TOTAL: \$33,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
R H KOCH	GSFC/D K WEST	11-Astronomy

**NGT 00-070-299 Pennsylvania State Univ. - Univ. Park 7085**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
 MINORITY FOCUS PROGRAM  

<i>Period</i>	<i>Obligations</i>	
09/11/1992-08/14/1994	FY93: \$22,000	TOTAL: \$44,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
W J RAY	LARC/E PRIOR	69-Psych, NEC

**NAG 5-1473 University of Pennsylvania 7093**  
 MODELLING OF NON-ISOTROPIC OUTFLOW IN COMETARY COMAE  

<i>Period</i>	<i>Obligations</i>	
10/05/1990-10/31/1993	FY93: \$18,243	TOTAL: \$51,513
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
R KOCH	GSFC/M J MUMMA	11-Astronomy

**NASA'S UNIVERSITY PROGRAM**  
**PENNSYLVANIA (Continued)**

**NAG 9-597 University of Pennsylvania 7094**  
 CO2/O2 INTERACTIONS IN EXTENSION OF TOLERANCE TO ACUTE HYPOXIA  

Period	Obligations	
05/04/1992-04/01/1994	FY93: \$100,000	TOTAL: \$198,500
Prin. Invest.	NASA Tech. Officer	CASE Category
C J LAMBERTSEN	JSC/J M WALIGORA	56-Medical Sciences
J M CLARK	..../M R POWELL	

**NAG 9-608 University of Pennsylvania 7095**  
 AMS MEASUREMENTS OF 41CA 3601 AND 59M APPLICATION TO EXTRATERRESTRIAL MATERIALS  

Period	Obligations	
05/21/1992-07/07/1993	FY93: \$0	TOTAL: \$45,000
Prin. Invest.	NASA Tech. Officer	CASE Category
R MIDDLETON	JSC/I D BROWNE	19-Phys Sci, NEC

**NAGW 3616 University of Pennsylvania 7096**  
 AMS MEASUREMENTS OF 41CA, 36CL, AND 59NI: APPLICAT ION TO EXTRATERRESTRIAL MATERIALS  

Period	Obligations	
06/16/1993-05/31/1994	FY93: \$46,350	TOTAL: \$46,350
Prin. Invest.	NASA Tech. Officer	CASE Category
R MIDDLETON	HQ/J BOYCE	32-Geological Sci

**NAGW 3628 University of Pennsylvania 7097**  
 ENVIRONMENTAL BIOMEDICAL RESEARCH DATA CENTER  

Period	Obligations	
06/03/1993-11/30/1993	FY93: \$125,000	TOTAL: \$125,000
Prin. Invest.	NASA Tech. Officer	CASE Category
C J LAMBERTSEN	HQ/R J WHITE	56-Medical Sciences

**NAG10-122 University of Pennsylvania 7098**  
 ACCESSIBILITY ANIMATION WITH GRAPHICAL HUMAN MODELS  

Period	Obligations	
05/24/1993-05/24/1994	FY93: \$48,750	TOTAL: \$48,750
Prin. Invest.	NASA Tech. Officer	CASE Category
N I BODLER	KSC/J R GOODIN	56-Medical Sciences

**NGT 00-050-688 University of Pennsylvania 7099**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  

Period	Obligations	
10/30/1990-12/15/1993	FY93: \$0	TOTAL: \$66,000
Prin. Invest.	NASA Tech. Officer	CASE Category
H H BAU	HQ/F C OWENS	46-Mech Engr

**NGT 00-050-729 University of Pennsylvania 7100**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  

Period	Obligations	
08/12/1991-08/31/1994	FY93: \$22,000	TOTAL: \$66,000
Prin. Invest.	NASA Tech. Officer	CASE Category
R P PAUL	HQ/F C OWENS	46-Mech Engr

**NGT 00-070-359 University of Pennsylvania 7101**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED MINORITY FOCUS PROGRAM  

Period	Obligations	
08/31/1993-08/31/1994	FY93: \$22,000	TOTAL: \$22,000
Prin. Invest.	NASA Tech. Officer	CASE Category
V KUMAR	HQ/D K RUSSELL	46-Mech Engr

**NAG 3-603 University of Pittsburgh 7102**  
 LOW TEMP LUMINESCENCE RAMAN SCATTERING AND RBS/CHANNELLING OF B SIC-CVD FILMS  

Period	Obligations	
01/24/1985-01/09/1994	FY93: \$45,000	TOTAL: \$290,985
Prin. Invest.	NASA Tech. Officer	CASE Category
W J CHOYKE	LERC/J A POWELL	13-Physics
	..../L G MATUS	

**NAG 3-945 University of Pittsburgh 7103**  
 HIGH FREQUENCY TEMPERATURE CHARACTERIZATION  

Period	Obligations	
10/26/1988-10/19/1994	FY93: \$0	TOTAL: \$288,907
Prin. Invest.	NASA Tech. Officer	CASE Category
W R WIESERMAN	LERC/G E SCHWARZE	45-Elec Engr

**NAG 3-973 University of Pittsburgh 7104**  
 LUBRICATION EFFECTIVENESS OF FLUID WITH MICROSTRUC TURE  

Period	Obligations	
01/01/1989-09/30/1992	FY93: \$0	TOTAL: \$171,327
Prin. Invest.	NASA Tech. Officer	CASE Category
M M KHONSARI	LERC/D E BREWE	49-Engr, NEC
K R RAJAGOPAL	..../S V PEPPER	

**NAG 3-1403 University of Pittsburgh 7105**  
 KINETIC AND TRANSPORT PHENOMENA IN A MICROGRAVITY EN VIRONMENT  

Period	Obligations	
01/06/1993-12/31/1993	FY93: \$109,000	TOTAL: \$109,000
Prin. Invest.	NASA Tech. Officer	CASE Category
D JASNOW	LERC/A T CHAI	19-Phys Sci, NEC

**NAG 3-1439 University of Pittsburgh 7106**  
 ANALYSIS OF HEAT TRANSFER IN AN ABSORBING EMITTING MEDIUM - APPLICATION TO PYROMETRY  

Period	Obligations	
01/20/1993-01/14/1994	FY93: \$49,861	TOTAL: \$49,861
Prin. Invest.	NASA Tech. Officer	CASE Category
C C HWANG	LERC/D L NG	46-Mech Engr

**NAG 5-609 University of Pittsburgh 7107**  
 A SOUNDING ROCKET STUDY OF N2O, NO AND OTHER T ROD CONSTITUENTS IN THE UPPER STRATOSPHERE AND MESOSP  

Period	Obligations	
07/01/1982-02/28/1994	FY93: \$197,000	TOTAL: \$1,499,067
Prin. Invest.	NASA Tech. Officer	CASE Category
E C ZIPF	GSFC/L J EARLY	13-Physics
P W ERDMAN	..../R H PLESS	

**NAG 5-661 University of Pittsburgh 7108**  
 SUBORBITAL PROGRAM IN MAGNETOSPHERIC AND IONSPHERIC PHYSICS  

Period	Obligations	
05/04/1990-07/31/1993	FY93: \$0	TOTAL: \$420,000
Prin. Invest.	NASA Tech. Officer	CASE Category
E C ZIPF	GSFC/L J EARLY	13-Physics
	..../R H PLESS	

**NASA'S UNIVERSITY PROGRAM**  
**PENNSYLVANIA (Continued)**

**NAG 5-1421 University of Pittsburgh 7109**  
 DAMPED LY-ALPHA ABSORPTION FROM LOW-REDSHIFT GALAXIES  
*Period Obligations*  
 08/14/1990-04/30/1993 FY93: \$0 TOTAL: \$135,300  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D A TURNSHEK GSFC/D WEST 11-Astronomy

**NAG 5-1717 University of Pittsburgh 7110**  
 THE INTRINSIC 1-10KEV X-RAY SPECTRUM OF HIGH LUMINOSITY QSOs  
*Period Obligations*  
 08/12/1991-08/14/1993 FY93: \$0 TOTAL: \$28,500  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 C HAZARD GSFC/R PETRE 11-Astronomy

**NAG 5-1778 University of Pittsburgh 7111**  
 UV STUDIES OF ABUNDANCES IN BAL QSOs AND DAMPED LYMA N-ALPHA ABSORPTION FROM LOW TO MODERATE ...  
*Period Obligations*  
 09/27/1991-01/31/1994 FY93: \$41,260 TOTAL: \$63,260  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D A TURNSHEK GSFC/D WEST 11-Astronomy

**NAG 5-1902 University of Pittsburgh 7112**  
 X-RAY OBSERVATIONS OF BROAD ABSORPTION LINE QSO'S  
*Period Obligations*  
 02/20/1992-02/28/1993 FY93: \$0 TOTAL: \$20,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D A TURNSHEK GSFC/R PETRE 11-Astronomy

**NAG 8-959 University of Pittsburgh 7113**  
 NUCLEATION AND CHIRAL SYMETRY BREAKING UNDER HYDRODYNAMIC FLOWS  
*Period Obligations*  
 06/02/1993-06/14/1994 FY93: \$60,000 TOTAL: \$60,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 X L WU MSFC/D NOEVER 19-Phys Sci, NEC

**NAGW 1270 University of Pittsburgh 7114**  
 SEARCH FOR PLANETARY SYSTEMS  
*Period Obligations*  
 04/15/1988-05/31/1994 FY93: \$112,000 TOTAL: \$622,998  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J P WEFEL HQ/J H RAHE 11-Astronomy

**NAGW 1764 University of Pittsburgh 7115**  
 ELECTRON ION RECOMBINATION AND ION MOLECULE REACTION PROCESS  
*Period Obligations*  
 05/17/1989-10/14/1993 FY93: \$108,780 TOTAL: \$412,735  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R JOHNSEN HQ/J T BERGSTRALH 11-Astronomy

**NAGW 2060 University of Pittsburgh 7116**  
 PHOTOMETRIC ANALYSIS OF SPACECRAFT PLANETARY IMAGE S  
*Period Obligations*  
 04/06/1990-10/31/1993 FY93: \$66,900 TOTAL: \$253,900  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 B HAPKE HQ/T A MAXWELL 32-Geological Sci

**NAGW 2080 University of Pittsburgh 7117**  
 A STUDY OF CONDITIONAL SEA ICE MOTION  
*Period Obligations*  
 09/06/1990-12/31/1991 FY93: \$0 TOTAL: \$146,845  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 B HAPKE HQ/T A MAXWELL 32-Geological Sci

**NAGW 2977 University of Pittsburgh 7118**  
 SPECTROPOLARIMETRY AS A PROBE OF THE ATMOSPHERIC S TRUCTURE FOR WOLF-RAYET STARS  
*Period Obligations*  
 03/12/1992-12/31/1993 FY93: \$15,000 TOTAL: \$29,629  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R E LADBECK HQ/R STACHNIK 11-Astronomy  
 ....E J WEILER

**NAGW 3231 University of Pittsburgh 7119**  
 NAGW-3231/UNIV PITTSBURGH/PUBLIC DISPLAY OF ASTRON OMICAL DATA AT PITTSBURGH NEW CARNEGIE SCIENCE  
*Period Obligations*  
 11/02/1992-07/31/1993 FY93: \$5,000 TOTAL: \$5,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 P C HAZARD HQ/L LAPIANA 11-Astronomy  
 ....G P NEWTON

**NAGW 3238 University of Pittsburgh 7120**  
 NAGW-3238/UNIV PITTSBURGH/ASTRONOMY AND SCIENCE EDUCATION FOR ELEMENTARY SCHOOL STUDENTS  
*Period Obligations*  
 11/02/1992-07/31/1993 FY93: \$5,000 TOTAL: \$5,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 P D TURNSHEK HQ/L S LAPIANA 11-Astronomy  
 ....G P NEWTON

**NAGW 3239 University of Pittsburgh 7121**  
 NAGW-3239/UNIV PITTSBURGH/HIGH SCHOOL WORKSHOP: MODERN ASTRONOMY AT ALLEGHENY OBSERVATORY  
*Period Obligations*  
 10/21/1992-10/31/1993 FY93: \$5,000 TOTAL: \$5,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 P R HQ/L LAPIANA 11-Astronomy  
 SCHULTE-LADBECK  
 ....G P NEWTON

**NAS 9-18404 University of Pittsburgh 7122**  
 DEFINITION PHASE FOR IML-2 EXPERIMENT 'HUMAN SLEEP AND CIRCADIAN RYHTHM'  
*Period Obligations*  
 11/02/1990-04/01/1997 FY93: \$170,000 TOTAL: \$621,822  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 T H MONK JSC/J VILLARREAL 51-Biological Sci

**NASW 4204 University of Pittsburgh 7123**  
 OPERATION OF A NASA INDUSTRIAL APPLICATIONS CENTER  
*Period Obligations*  
 07/01/1986-12/31/1991 FY93: \$63,043 TOTAL: \$3,159,239  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 P A MCWILLIAMS HQ/R BIVINS 44-Civil Engr  
 ....H CLARKS

**NASA'S UNIVERSITY PROGRAM**  
**PENNSYLVANIA (Continued)**

**NASW 4677** **University of Pittsburgh** **7124**  
 NASW-4677/UNIV OF PITTSBURGH/NASA RTTC LOCATED IN THE  
 MID-ATLANTIC REGION OF THE U.S.  

<i>Period</i>	<i>Obligations</i>	
12/20/1991-12/31/1993	FY93: \$1,136,957	TOTAL: \$1,886,957
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
L S HUMMEL	HQ/F E PENARANDA	99-Multi-Discip

**NAGW 2766** **University of Scranton** **7125**  
 THE GAS EXCHANGE WETLANDS: CONTROLS AND REMOTE SEN  
 SING  

<i>Period</i>	<i>Obligations</i>	
11/08/1991-03/31/1993	FY93: \$0	TOTAL: \$95,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
M A HARDISKY	HQ/M M AVERNER	32-Geological Sci

**NAG 5-343** **Villanova University** **7126**  
 ULTRAVIOLET OBSERVATIONS OF SELECTED ASTRONOMICAL  
 SOURCES  

<i>Period</i>	<i>Obligations</i>	
07/15/1983-10/14/1991	FY93: \$0	TOTAL: \$161,950
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
E M SION	GSFC/D WEST	11-Astronomy
F C BRUHWEILER		
G VAUCLAIR		

**NAG 5-382** **Villanova University** **7127**  
 COORDINATED ULTRAVIOLET SPECTROSCOPY AND OPTICAL  
 PHOTOMETRY OF SELECTED COOL STARS  

<i>Period</i>	<i>Obligations</i>	
01/01/1984-09/30/1994	FY93: \$51,000	TOTAL: \$298,134
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
E F GUINAN	GSFC/D WEST	11-Astronomy
F P MALONEY		
S W WACKER		

**NAG 5-980** **Villanova University** **7128**  
 SIMULTANEOUS IUE AND MAGNETIC OBSERVATIONS OF A  
 SELECTED YOUNG DWARF  

<i>Period</i>	<i>Obligations</i>	
09/01/1987-09/30/1993	FY93: \$0	TOTAL: \$97,758
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
C AMBRUSTER	GSFC/D WEST	11-Astronomy

**NAG 5-1284** **Villanova University** **7129**  
 AN ARCHIVAL SEARCH FOR ANCIENT NOVA SHELLS  

<i>Period</i>	<i>Obligations</i>	
08/29/1989-09/30/1991	FY93: \$655	TOTAL: \$63,145
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
E M SION	GSFC/D WEST	11-Astronomy

**NAG 5-1662** **Villanova University** **7130**  
 X-RAY EMISSION OF THE SUN IN TMIE  

<i>Period</i>	<i>Obligations</i>	
06/27/1991-06/30/1993	FY93: \$0	TOTAL: \$11,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
E F GUINAN	GSFC/R PETRE	11-Astronomy

**NAG 5-1703** **Villanova University** **7131**  
 ACTIVITY CYCLES OF CHROMOSPHERICALLY ACTIVE STARS  

<i>Period</i>	<i>Obligations</i>	
07/15/1991-07/14/1993	FY93: \$0	TOTAL: \$30,980
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
E F GUINAN	GSFC/D WEST	11-Astronomy

**NAG 5-1836** **Villanova University** **7132**  
 IUE ECHELLE STUDIES OF THE VERY LUMINOUS ROSAT EUV  
 SOURCE AND EVOLUTIONARY STATE OF HELIUM TRANSFER.  

<i>Period</i>	<i>Obligations</i>	
11/26/1991-01/31/1994	FY93: \$17,940	TOTAL: \$33,967
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
E M SION	GSFC/D WEST	11-Astronomy

**NAG 5-2160** **Villanova University** **7133**  
 1) THE PAST, PRESENT AND FUTURE SUN: AN IUE INVES T., OF  
 SOLAR PROXIES 2) UV CHROMOSPHERIC . . .  

<i>Period</i>	<i>Obligations</i>	
12/31/1992-12/31/1993	FY93: \$16,170	TOTAL: \$16,170
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
E F GUINAN	GSFC/D WEST	11-Astronomy

**NAG 5-2278** **Villanova University** **7134**  
 EUVE SPECTROSCOPY OF EXPOSED WD'S IN 3 CATAclysmic  
 VARIABLES: PROBING ACCRETION PHYSICS FOR . . .  

<i>Period</i>	<i>Obligations</i>	
05/26/1993-06/14/1994	FY93: \$20,000	TOTAL: \$20,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
E SION	GSFC/R OLIVERSEN	11-Astronomy

**NAG 5-2279** **Villanova University** **7135**  
 CORONAL SPECTROSCOPY AND OUTER ATMOSPHERIC MODELLI  
 NG OF ZERO-AGE-MAIN-SEQUENCE K DWARFS . . .  

<i>Period</i>	<i>Obligations</i>	
07/15/1993-07/31/1994	FY93: \$51,560	TOTAL: \$51,560
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
C W AMBRUSTER	GSFC/R OLIVERSEN	11-Astronomy

**NAGW 3726** **Villanova University** **7136**  
 WHITE DWARFS IN CATAclysmic VARIABLES  

<i>Period</i>	<i>Obligations</i>	
08/31/1993-07/31/1994	FY93: \$32,622	TOTAL: \$32,622
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
E SION	HQ/G R RIEGLER	11-Astronomy

**NCA 2-491** **Villanova University** **7137**  
 MECHANISMS OF ATTENTION ALLOCATION IN VISUAL  

<i>Period</i>	<i>Obligations</i>	
03/09/1990-01/31/1993	FY93: \$0	TOTAL: \$43,300
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
C L FOLK	ARC/R W REMINGTON	61-Biol Aspects

**NCA 2-797** **Villanova University** **7138**  
 CONTINGENT ATTENTIONAL CAPTURE  

<i>Period</i>	<i>Obligations</i>	
03/11/1993-03/14/1995	FY93: \$21,790	TOTAL: \$21,790
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
C L FOLK	ARC/R REMINGTON	61-Biol Aspects

**NASA'S UNIVERSITY PROGRAM**  
**PENNSYLVANIA (Continued)**

**NCC 3-276** **Westminster College** **7139**  
INTERFEROMETRIC FRINGE ANALYSIS OF THE DENSITY RELAXATION OF THE LIQ-VAPOR CRITICAL POINT FLUID SF6  
*Period* *Obligations*  
08/19/1992-05/31/1993 FY93: \$2,200 TOTAL: \$36,557  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
W L JOHNSON LERC/R A WILKINSON 13-Physics

**NAG 3-1484** **Brown University** **7146**  
MIXING ENHANCEMENT IN HIGH SPEED JET FLOWS THROUGH NONLINEAR MULTIPLE-FREQUENCY MODE INTERACTIONS  
*Period* *Obligations*  
05/04/1993-01/25/1994 FY93: \$82,700 TOTAL: \$82,700  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J T LIU LERC/M D DAHL 41-Aero Engr

**RHODE ISLAND**

**NAG 1-703** **Brown University** **7140**  
RESEARCH IN COMPUTATIONAL FLUID DYNAMICS (CFD) AND TURBULENCE  
*Period* *Obligations*  
10/10/1986-08/31/1993 FY93: \$1 TOTAL: \$284,668  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
D GOTTLIEB LARC/G ERLEBACHER 41-Aero Engr  
L SIROVICH

**NAG 5-2183** **Brown University** **7147**  
PARTICIPATION IN THE MARS OBSERVER LASER ALTIMETER (MOLA) TEAM  
*Period* *Obligations*  
02/09/1993-02/14/1994 FY93: \$60,000 TOTAL: \$60,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J W HEAD GSFC/D E SMITH 11-Astronomy

**NAG 9-109** **Brown University** **7148**  
EXPERIMENTAL METAMORPHIC STUDIES/IRON-SULFIDE  
*Period* *Obligations*  
05/01/1985-05/01/1994 FY93: \$0 TOTAL: \$416,500  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
P C HESS JSC/I D BROWNE 47-Materials Engr

**NAG 1-1065** **Brown University** **7141**  
PARAMETER IDENTIFICATION FOR NONLINEAR AERODYNAMIC SYSTEMS  
*Period* *Obligations*  
10/24/1989-02/28/1993 FY93: \$1 TOTAL: \$146,960  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
A E PEARSON LARC/J G BATTERSON 41-Aero Engr  
...../P C MURPHY

**NAG 9-184** **Brown University** **7149**  
MINERALOGY OF LUNAR MATERIALS  
*Period* *Obligations*  
10/01/1986-10/01/1994 FY93: \$0 TOTAL: \$195,181  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
C M PIETERS JSC/I D BROWNE 32-Geological Sci

**NAG 1-1145** **Brown University** **7142**  
MULTI-DIMENSIONAL HIGH ORDER ESSENTIALLY NON-OSCILLATORY FINITE DIFFERENCE METHODS IN GEN COORD  
*Period* *Obligations*  
05/23/1990-05/31/1993 FY93: \$15,000 TOTAL: \$67,500  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
C W SHU LARC/H L ATKINS 41-Aero Engr

**NAG 9-575** **Brown University** **7150**  
EXPERIMENTAL STUDY OF LUNAR AND SNC MAGMAS: ROLE OF VOLATILES  
*Period* *Obligations*  
03/18/1992-04/01/1993 FY93: \$0 TOTAL: \$45,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
M J RUTHERFORD JSC/I D BROWNE 19-Phys Sci, NEC

**NAG 1-1230** **Brown University** **7143**  
QUANTITATIVE AND PREDICTIVE MODELLING OF WALL BOUNDED FLOWS -- MY  
*Period* *Obligations*  
02/26/1991-02/28/1994 FY93: \$17,357 TOTAL: \$80,341  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
L SIROVICH LARC/T B GATSKI 41-Aero Engr

**NAGW 28** **Brown University** **7151**  
REMOTE SENSING INFORMATION APPLIED TO GEOLOGICAL STUDIES OF PLANETS  
*Period* *Obligations*  
02/14/1980-09/30/1993 FY93: \$79,000 TOTAL: \$1,338,222  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
C M PIETERS HQ/J R UNDERWOOD 32-Geological Sci  
...../J M BOYCE

**NAG 2-830** **Brown University** **7144**  
THREE-DIMENSIONAL USER INTERFACES FOR SCIENTIFIC VISUALIZATION  
*Period* *Obligations*  
04/02/1993-03/31/1994 FY93: \$100,000 TOTAL: \$100,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
A DAM ARC/T A LASINSKI 22-Computer Science

**NAGW 137** **Brown University** **7152**  
VOLCANISM AND TECTONISM  
*Period* *Obligations*  
03/01/1981-10/31/1993 FY93: \$48,300 TOTAL: \$883,899  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J W HEAD HQ/J R UNDERWOOD 32-Geological Sci  
...../J M BOYCE

**NAG 3-1016** **Brown University** **7145**  
STUDIES OF TURBULENT SHEAR FLOWS AND THEIR CONTROL  
*Period* *Obligations*  
02/28/1989-10/17/1992 FY93: \$0 TOTAL: \$120,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J T LIU LERC/M D DAHL 41-Aero Engr

**NAGW 705** **Brown University** **7153**  
PLANETARY IMPACT PROCESSES  
*Period* *Obligations*  
03/01/1985-09/30/1993 FY93: \$153,983 TOTAL: \$1,300,262  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
P H SCHULTZ HQ/J R UNDERWOOD 32-Geological Sci  
...../J M BOYCE

**NASA'S UNIVERSITY PROGRAM**  
**RHODE ISLAND (Continued)**

**NAGW 713** **Brown University** **7154**  
 VENUS DATA ANALYSIS - RADAR IMAGES/GLOBAL DATA SETS  
*Period* *Obligations*  
 03/01/1985-09/30/1993 FY93: \$52,300 TOTAL: \$491,943  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 J W HEAD HQ/J R UNDERWOOD 32-Geological Sci  
 ....J M BOYCE

**NAGW 748** **Brown University** **7155**  
 REFLECTANCE EXPERIMENT LAB  
*Period* *Obligations*  
 05/01/1985-09/30/1993 FY93: \$93,634 TOTAL: \$571,856  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 C M PIETERS HQ/J R UNDERWOOD 32-Geological Sci  
 ....J M BOYCE

**NAGW 855** **Brown University** **7156**  
 REGIONAL PLANETARY DATA FACILITY  
*Period* *Obligations*  
 11/01/1987-01/14/1993 FY93: \$45,175 TOTAL: \$274,127  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 P H SCHULTZ HQ/J R UNDERWOOD 32-Geological Sci  
 ....B M FRENCH

**NAGW 1118** **Brown University** **7157**  
 VOLCANISM AND CONTINENTAL EVOLUTION  
*Period* *Obligations*  
 04/15/1987-01/14/1992 FY93: \$0 TOTAL: \$348,469  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 C M PIETERS HQ/M BALTUCK 32-Geological Sci  
 ....T J PIEPER

**NAGW 1873** **Brown University** **7158**  
 GEOLOGICAL PROCESSES ON PLANETS AND SATELLITES: TECTONISM  
*Period* *Obligations*  
 07/23/1990-09/30/1993 FY93: \$54,732 TOTAL: \$326,707  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 J W HEAD HQ/T A MAXWELL 32-Geological Sci

**NAGW 1928** **Brown University** **7159**  
 PLANETARY GEOPHYSICS AND TECTONICS  
*Period* *Obligations*  
 01/05/1990-10/31/1993 FY93: \$65,720 TOTAL: \$257,380  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 E M PARMENTIER HQ/T A MAXWELL 32-Geological Sci

**NAGW 2171** **Brown University** **7160**  
 EROSIONAL AND DEPOSITIONAL HISTORY OF CENTRAL  
*Period* *Obligations*  
 07/23/1990-10/31/1992 FY93: \$0 TOTAL: \$14,975  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 L S CRUMPLER HQ/T A MAXWELL 32-Geological Sci

**NAGW 2185** **Brown University** **7161**  
 GEOLOGICAL STUDIES OF PLANETS AND SATELLITES; PLAN ETARY VOLCANISM  
*Period* *Obligations*  
 07/23/1990-09/30/1993 FY93: \$241,100 TOTAL: \$715,086  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 J W HEAD HQ/T A MAXWELL 32-Geological Sci

**NAGW 2500** **Brown University** **7162**  
 PROBLEMS IN VOLCANOLOGY AND UNCONFORMABLE SURFACE DEPOSITS ON MARS  
*Period* *Obligations*  
 08/12/1991-01/31/1994 FY93: \$16,982 TOTAL: \$59,422  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 J HEAD HQ/W L QUAIDE 19-Phys Sci, NEC

**NAGW 2797** **Brown University** **7163**  
 FAR INFRARED DETECTORS FOR OBSERVATIONAL COSMOLOGY  
*Period* *Obligations*  
 01/03/1992-12/31/1993 FY93: \$81,219 TOTAL: \$169,550  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 P T TIMBIE HQ/J K ALEXANDER 11-Astronomy  
 ....D A HOLLAND

**NAGW 3331** **Brown University** **7164**  
 KINETIC AND THERMODYNAMIC STUDIES OF MELTING FREEZ ING OF HELIUM IN MICROGRAVITY  
*Period* *Obligations*  
 01/11/1993-12/31/1993 FY93: \$110,000 TOTAL: \$110,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 C ELBAUM HQ/M C LEE 19-Phys Sci, NEC

**NAGW 3359** **Brown University** **7165**  
 THE DYNAMICS AND MORPHOLOGY OF SUPERFLUID HELIUM DROPS IN A MICROGRAVITY ENVIRONMENT  
*Period* *Obligations*  
 02/04/1993-12/31/1993 FY93: \$140,000 TOTAL: \$140,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 H J MARIS HQ/M C LEE 13-Physics

**NAGW 3379** **Brown University** **7166**  
 COMPOSITION, ALTERATION, AND REDISTRIBUTION OF LOW ALBEDO MATERIALS ON MARS FROM ISM DATA  
*Period* *Obligations*  
 02/16/1993-02/28/1993 FY93: \$35,000 TOTAL: \$35,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 J F MUSTARD HQ/J M BOYCE 32-Geological Sci

**NAGW 3412** **Brown University** **7167**  
 GEO. TRANS. FR. LOW. TO HIGH., SOUT. CHR. PLAN. AND NOR. XAN. TER., MAR. GEO. MAP. OF THE MTM ### QUAD  
*Period* *Obligations*  
 02/18/1993-02/28/1994 FY93: \$10,000 TOTAL: \$10,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 L S CRUMPLER HQ/J M BOYCE 32-Geological Sci

**NAGW 3431** **Brown University** **7168**  
 GEOLOGIC SIGNATURES OF ATMOSPHERIC EFFECTS ON IMPA CT CRATERING ON VENUS  
*Period* *Obligations*  
 03/03/1993-03/14/1994 FY93: \$80,063 TOTAL: \$80,063  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 P H SCHULTY HQ/W J WAGNER 13-Physics  
 ....G WITHBROE



**NASA'S UNIVERSITY PROGRAM**  
**RHODE ISLAND (Continued)**

**NAGW 3486** **Brown University** **7169**  
 RELATIONSHIP AND STRATIGRAPHIC ASSOCIATION OF THE SMALL  
 VOLCANOES AND PLAINS TERRAIN OF VENUS  
*Period* *Obligations*  
 04/02/1993-03/14/1994 FY93: \$26,176 TOTAL: \$26,176  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 J C AUBELE HQ/J T BERGSTRALH 32-Geological Sci

**NAGW 3488** **Brown University** **7170**  
 THE GABBRO ECLOGITE TRANSITION AND CRYSTAL RECYCLING  
 ON VENUS  
*Period* *Obligations*  
 03/27/1993-03/14/1994 FY93: \$65,000 TOTAL: \$65,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 P C HESS HQ/J T BERGSTRALH 32-Geological Sci

**NAGW 3613** **Brown University** **7171**  
 EXPERIMENTAL STUDY OF CHEMICAL PHASE AND TEXTURAL  
 EQUILIBRIUM OF HIGH TIO<sub>2</sub> MARE BASALTS AND PERIDOTI  
*Period* *Obligations*  
 06/11/1993-04/30/1994 FY93: \$46,557 TOTAL: \$46,557  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 P HESS HQ/RAHE 32-Geological Sci

**NAGW 3633** **Brown University** **7172**  
 EXPERIMENTAL STUDY OF LUNAR AND SNC MAGMAS: ROLE OF  
 VOLATILES  
*Period* *Obligations*  
 06/16/1993-03/31/1994 FY93: \$46,350 TOTAL: \$46,350  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 M RUTHERFORD HQ/J BOYCE 32-Geological Sci

**NAGW 3709** **Brown University** **7173**  
 MINERALOGY OF LUNAR MATERIALS FROM REFLECTANCE SPE C  
*Period* *Obligations*  
 08/10/1993-06/30/1994 FY93: \$26,790 TOTAL: \$26,790  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 C PIETERS HQ/RAHE 32-Geological Sci

**NAGW 3756** **Brown University** **7174**  
 MISSION OPERATIONS AND CALIBRATION OF CLEMENTINE DATA  
 FOR MAXIMUM SCIENCE RETURN  
*Period* *Obligations*  
 09/17/1993-06/30/1996 FY93: \$25,000 TOTAL: \$25,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 C PIETERS HQ/H C BRINTON 11-Astronomy

**NCA 2-796** **Brown University** **7175**  
 EFFECTS OF EXTREME ALTITUDE AND STRESS ON SOME ASPECTS  
 OF SPEECH SYNTAX MEMORY AND COGNITION AT MOUNT EVEREST  
*Period* *Obligations*  
 02/16/1993-02/28/1994 FY93: \$39,993 TOTAL: \$39,993  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 P LIEBERMAN ARC/B KANKI 61-Biol Aspects

**NGT 00-040-034** **Brown University** **7176**  
 NATIONAL SPACE GRANT COLLEGE AND FELLOWSHIP PROGRAM  
*Period* *Obligations*  
 04/03/1991-02/28/1994 FY93: \$170,000 TOTAL: \$490,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 P H SCHULTZ HQ/E T SCHWARTZ 99-Multi-Discip

**NGT 00-050-420** **Brown University** **7177**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period* *Obligations*  
 08/14/1989-06/30/1993 FY93: \$0 TOTAL: \$73,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 J S VITTER HQ/F C OWENS 22-Computer Science

**NGT 00-050-558** **Brown University** **7178**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period* *Obligations*  
 06/26/1990-06/30/1994 FY93: \$22,000 TOTAL: \$88,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 C M PIETERS HQ/F C OWENS 12-Chemistry

**NGT 00-050-755** **Brown University** **7179**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period* *Obligations*  
 09/17/1991-06/30/1994 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 N M LAWANDY GSFC/G SOFFEN 45-Elec Engr

**NGT 00-050-795** **Brown University** **7180**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period* *Obligations*  
 06/28/1991-06/30/1993 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 C M PIETERS HQ/F C OWENS 32-Geological Sci

**NGT 00-050-917** **Brown University** **7181**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period* *Obligations*  
 06/29/1992-06/30/1994 FY93: \$22,000 TOTAL: \$44,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 M J RUTHERFORD HQ/J ALEXANDER 32-Geological Sci

**NGT 00-050-922** **Brown University** **7182**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period* *Obligations*  
 06/30/1992-06/30/1994 FY93: \$22,000 TOTAL: \$44,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 M J RUTHERFORD HQ/J ALEXANDER 32-Geological Sci

**NGT 00-051-011** **Brown University** **7183**  
 GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period* *Obligations*  
 02/09/1993-12/14/1993 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 R H GSFC/G SOFFEN 13-Physics  
 BRANDENBERGER

**NASA'S UNIVERSITY PROGRAM**  
**RHODE ISLAND (Continued)**

**NGT 00-051-029 Brown University 7184**  
 GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 06/23/1993-06/30/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 P F FISHER HQ/J T LYNCH 21-Mathematics

**NAG 1-1235 University of Rhode Island 7191**  
 METEOROLOGICAL AND PHOTOCHEMICAL MODELING IN PEM WEST  
*Period Obligations*  
 03/12/1991-08/31/1994 FY93: \$282,744 TOTAL: \$622,744  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J T MERRILL LARC/J M HOELL 31-Atmos Sci  
 B HEIKES

**NGT 00-051-058 Brown University 7185**  
 GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 06/01/1993-06/30/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 P H SCHULTZ HQ/D HOLLAND 32-Geological Sci

**NAG 1-1395 University of Rhode Island 7192**  
 HYDROPEROXIDE AND FORMALDEHYDE: AIRBORNE EQUATORIAL DISTRIBUTIONS AND RELATIONSHIPS TO OZONE  
*Period Obligations*  
 03/09/1992-03/04/1994 FY93: \$90,132 TOTAL: \$223,362  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 B G HEIKES LARC/J D BARRICK 31-Atmos Sci  
 ....J M HOELL

**NGT 00-070-285 Brown University 7186**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED MINORITY FOCUS PROGRAM  
*Period Obligations*  
 07/09/1992-06/30/1994 FY93: \$22,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 P C HESS HQ/J K ALEXANDER 32-Geological Sci

**NAG 3-1428 University of Rhode Island 7193**  
 HIGH TEMPERATURE THIN FILM STRAIN SENSORS BASED ON ALUMINUM NITRIDE  
*Period Obligations*  
 01/14/1993-01/07/1994 FY93: \$60,000 TOTAL: \$60,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 O J GREGORY LERC/L C MARTIN 49-Engr, NEC

**NGT 00-070-326 Brown University 7187**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED MINORITY FOCUS PROGRAM  
*Period Obligations*  
 07/01/1993-06/30/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J HEAD HQ/D K RUSSELL 32-Geological Sci

**NAG 5-1844 University of Rhode Island 7194**  
 SOURCE OF VOLCANIC AEROSOL: SULFUR SOLUBILITY AND DEGASSING OF MAGMAS  
*Period Obligations*  
 12/10/1991-12/14/1993 FY93: \$29,500 TOTAL: \$103,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 H SIGURDSSON GSFC/L S WALTER 31-Atmos Sci  
 M J RUTHERFORD  
 S CAREY

**NAG 1-519 University of Rhode Island 7188**  
 FIBER OPTIC PRESSURE SENSORS IN SKIN-FRICTION MEASUREMENTS  
*Period Obligations*  
 08/30/1984-11/30/1992 FY93: \$0 TOTAL: \$343,941  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 F W CUOMO LARC/A J ZUCKERWAR 13-Physics  
 S V LETCHER ....H K HOLMES

**NAGW 858 University of Rhode Island 7195**  
 OBJECTIVE EDGE DETECTION IN SST FIELDS  
*Period Obligations*  
 04/01/1986-06/30/1992 FY93: \$0 TOTAL: \$1,198,909  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 P CORNILLON HQ/M R LEWIS 33-Oceanography  
 E CARTER ....W S WILSON

**NAG 1-1222 University of Rhode Island 7189**  
 DISTRIBUTIONS OF HYDROPEROXIDES: THEIR RELATIONSHIP TO OZONE AND OTHER OXIDANTS  
*Period Obligations*  
 02/27/1991-05/31/1994 FY93: \$121,000 TOTAL: \$320,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 B G HEIKES LARC/J D BARRICK 31-Atmos Sci  
 ....J M HOELL

**NAGW 1891 University of Rhode Island 7196**  
 OCEAN COLOR STUDIES OF THE EASTERN ATLANTIC  
*Period Obligations*  
 12/07/1989-11/30/1993 FY93: \$157,062 TOTAL: \$573,989  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J A YODER HQ/M R LEWIS 33-Oceanography  
 ....W S WILSON

**NAG 1-1225 University of Rhode Island 7190**  
 CONCENTRATIONS OF MINERAL AEROSOL AND TRACE ELEMENTS IN ATMOSPHERE OF WESTERN PACIFIC AND RELATIONS  
*Period Obligations*  
 02/27/1991-02/25/1994 FY93: \$67,376 TOTAL: \$145,514  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R ARIMOTO LARC/B E ANDERSON 31-Atmos Sci  
 R A DUCE ....J M HOELL

**NAGW 2560 University of Rhode Island 7197**  
 NAGW-2560/UNIV RHODE ISLAND/SATELLITE/IN-SITU INVENTORY INTEROPERABILITY: THE FIRST STEP  
*Period Obligations*  
 06/13/1991-02/28/1994 FY93: \$164,724 TOTAL: \$494,266  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 P CORNILLON HQ/G HUNOLT 33-Oceanography  
 ....D M BUTLER

# NASA'S UNIVERSITY PROGRAM

## RHODE ISLAND (Continued)

**NAGW 2584 University of Rhode Island 7198**  
 NAGW-2584/UNIV. RHODE ISLAND/SUPPORT FOR GORDON  
 RESEARCH CONFERENCE ON ORIGINS OF SOLAR SYSTEMS  
*Period Obligations*  
 07/31/1991-03/31/1994 FY93: \$20,000 TOTAL: \$32,500  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A G CAMERON HQ/J A NUTH 11-Astronomy

**NAGW 3009 University of Rhode Island 7199**  
 A STUDY OF THE FORMATION OF SUBTROPICAL MODE WATER  
*Period Obligations*  
 04/03/1992-12/31/1993 FY93: \$139,766 TOTAL: \$280,171  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 P C CORMILLON HQ/D ADAMEC 33-Oceanography  
 ....R A SCHIFFER

**NAGW 3020 University of Rhode Island 7200**  
 COMPARISON BETWEEN CZCS-MEASURED AEROSOL RADIANCE  
 AND MARINE BOUNDARY LAYER MINERAL AEROSOL CONC.  
*Period Obligations*  
 03/30/1992-11/30/1993 FY93: \$24,852 TOTAL: \$95,681  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 N W TINDALE HQ/J A KAYE 31-Atmos Sci  
 ....R E MURPHY

**NAGW 3133 University of Rhode Island 7201**  
 DEVELOPMENT AND EVALUATION OF CLOUD SCREENING ALGO  
 RITHMS  
*Period Obligations*  
 07/14/1992-08/31/1993 FY93: \$0 TOTAL: \$35,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 P C CORNILLION HQ/D ADAMEC 33-Oceanography  
 ....R A SCHIFFER

**NAGW 3496 University of Rhode Island 7202**  
 NAGW-3496/UNIV RHODE ISLAND/BOLIDE IMPACE ON EVAPO RITE  
 TERRANE  
*Period Obligations*  
 03/27/1993-12/31/1993 FY93: \$45,002 TOTAL: \$45,002  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 H SUGURDSSON HQ/J BOYCE 32-Geological Sci

**NAGW 3601 University of Rhode Island 7203**  
 REMOTE SENSING OF MINERAL AEROSOLS AND THEIR IMPAC T  
 ON PHYTOPLANKTON PRODUCTION  
*Period Obligations*  
 05/21/1993-04/30/1994 FY93: \$25,000 TOTAL: \$25,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 P STEGMAN HQ/R E MURPHY 33-Oceanography  
 N TINDALE

**NAGW 3645 University of Rhode Island 7204**  
 1993 RESEARCH CONFERENCE ON CHRONOBIOLOGY  
*Period Obligations*  
 08/03/1993-05/31/1994 FY93: \$6,000 TOTAL: \$6,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A CRUICKSHANK HQ/J H STOKLOSA 51-Biological Sci

**NGT 00-050-605 University of Rhode Island 7205**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 07/01/1990-06/30/1993 FY93: \$0 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J YODER HQ/F C OWENS 33-Oceanography

**NGT 00-070-241 University of Rhode Island 7206**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
 MINORITY FOCUS PROGRAM  
*Period Obligations*  
 07/01/1991-06/30/1993 FY93: \$0 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J A YODER HQ/F C OWENS 33-Oceanography

## SOUTH CAROLINA

**NAG 8-259 Benedict College 7207**  
 JOVE  
*Period Obligations*  
 02/10/1993-06/09/1994 FY93: \$47,000 TOTAL: \$47,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 L LOWE MSFC/F SIX 56-Medical Sciences

**NAG 5-1300 Citadel Military College of S C 7208**  
 ULTRAVIOLET SPECTRAL ENERGY DISTRIBUTIONS  
 MERCURY-MANGANESE  
*Period Obligations*  
 09/15/1989-01/31/1993 FY93: \$0 TOTAL: \$42,501  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S J ADOLMAN GSFC/D WEST 11-Astronomy

**NAG 5-1402 Citadel Military College of S C 7209**  
 ELEMENTS IN SHARP-LINED EARLY TYPE STARS  
*Period Obligations*  
 07/10/1990-07/31/1992 FY93: \$0 TOTAL: \$23,419  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S J ADELMAN GSFC/D WEST 11-Astronomy

**NAG 5-1551 Citadel Military College of S C 7210**  
 PHOTOGRAPHIC REGION ELEMENTAL ABUNDANCE ANALYSIS O F  
 HST/GTO STARS, II  
*Period Obligations*  
 04/26/1991-07/31/1994 FY93: \$0 TOTAL: \$25,980  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S J ADELMAN GSFC/D S LECKRONE 11-Astronomy

**NAGW 3225 Citadel Military College of S C 7211**  
 NAGW-3225/CITADEL MILITARY COLLEGE SC/ASTRONOMY IN THE  
 ELEMENTARY CLASSROOM  
*Period Obligations*  
 11/02/1992-07/31/1993 FY93: \$4,973 TOTAL: \$4,973  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S J ADELMAN HQ/L S LAPIANA 11-Astronomy  
 ....G P NEWTON

**NASA'S UNIVERSITY PROGRAM**  
**SOUTH CAROLINA (Continued)**

**NAG 1-928** **Clemson University - Clemson** **7212**  
WINDSHEAR DETECTION RADAR SIGNAL PROCESSING STUDIE S  
*Period* *Obligations*  
11/18/1988-08/31/1993 FY93: \$53,253 TOTAL: \$312,724  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
E G BAXA LARC/A I MACKENZIE 45-Elec Engr  
....L D STATON

**NAG 1-1108** **Clemson University - Clemson** **7213**  
DEVELOPMENT OF HIGH TE (110K) BI, T1 AND Y-BASED MATERIALS  
AS SUPERCONDUCTING CIRCUIT ELEMENTS  
*Period* *Obligations*  
02/28/1990-02/20/1994 FY93: \$56,000 TOTAL: \$170,800  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
G H HAERTLING LARC/S A WISE 47-Materials Engr  
B I LEE ....W C KELLIHER

**NAG 1-1141** **Clemson University - Clemson** **7214**  
STIFFNESS TAILORING OF COMPOSITE PLATES FOR IMPROV ED  
STABILITY AND STRENGTH UNDER COMBINED LOADING.  
*Period* *Obligations*  
05/28/1990-10/31/1993 FY93: \$59,972 TOTAL: \$247,066  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
S B BIGGERS LARC/M J SHUART 41-Aero Engr  
....D R AMBUR

**NAG 1-1301** **Clemson University - Clemson** **7215**  
SUPERCONDUCTIVITY DEVICES: COMMERCIAL USE FOR SPACE  
*Period* *Obligations*  
07/03/1991-07/02/1994 FY93: \$55,000 TOTAL: \$165,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
G H HAERTLING LARC/W E MILLER 47-Materials Engr

**NAG 1-1374** **Clemson University - Clemson** **7216**  
DEVELOPMENT OF ASSUMED-STRESS HYBRID ELEMENTS WITH  
ROTATIONAL DEGREES OF FREEDOM FOR ANALYZING COMPL  
*Period* *Obligations*  
02/20/1992-05/15/1993 FY93: \$6,540 TOTAL: \$77,540  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
N F KNIGHT LARC/A TESSLER 46-Mech Engr

**NAG 3-1072** **Clemson University - Clemson** **7217**  
S-1 AND S-2 METHODS AND 3-D FLOW SOLUTIONS AND  
TURABOMAC HINERY  
*Period* *Obligations*  
09/18/1989-01/09/1993 FY93: \$0 TOTAL: \$38,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
C H WU LERC/L REID 46-Mech Engr  
....R REAMES

**NAG 3-1311** **Clemson University - Clemson** **7218**  
NEUROCONTROL  
*Period* *Obligations*  
12/12/1991-09/30/1993 FY93: \$28,623 TOTAL: \$84,649  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J K PETERSON LERC/J A PENNLINE 21-Mathematics  
....W F FORD

**NAG 5-632** **Clemson University - Clemson** **7219**  
EXPERIMENTAL AND THEONETICAL INVESTIGATIONS OF HIGH  
LATITUDE THERMOSPHERIC DYNAMICS  
*Period* *Obligations*  
12/31/1985-11/30/1993 FY93: \$135,000 TOTAL: \$709,203  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
M F LARSEN GSFC/L J EARLY 13-Physics  
....R H PLESS

**NAG 5-667** **Clemson University - Clemson** **7220**  
HIGH POWER RADIO WAVES AND CHEMICAL RELEASES  
*Period* *Obligations*  
05/04/1990-05/31/1993 FY93: \$0 TOTAL: \$45,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
L M DUNCAN GSFC/L J EARLY 13-Physics  
....R H PLESS

**NAG 5-1578** **Clemson University - Clemson** **7221**  
THE DIFFUSE GALACTIC GLOW  
*Period* *Obligations*  
05/01/1991-11/14/1993 FY93: \$89,991 TOTAL: \$140,991  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
D H HARTMANN GSFC/J P NORRIS 11-Astronomy  
....D A KNIFFEN

**NAG 5-1842** **Clemson University - Clemson** **7222**  
MULTIWAVELENGTH DEEP COUNTERPART SEARCH IN THE FIE LD  
OF GB790406: X-RAYS  
*Period* *Obligations*  
12/02/1991-12/14/1992 FY93: \$0 TOTAL: \$6,342  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
D H HARTMANN GSFC/R PETRE 11-Astronomy

**NAG 5-5002** **Clemson University - Clemson** **7223**  
KINEMATIC ANALYSIS OF TROPICAL CYCLONES USING SATELLITE  
WIND MEASUREMENTS  
*Period* *Obligations*  
04/16/1993-04/30/1994 FY93: \$133,000 TOTAL: \$133,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
M F LARSEN GSFC/L J EARLY 13-Physics  
....R H PLESS

**NAG 6-102** **Clemson University - Clemson** **7224**  
COORDINATED STUDIES OF MAGNETOSPHERIC/IONOSPHERIC  
COUPLING AND DYNAMICS IN THE DIFFUSE AURORA  
*Period* *Obligations*  
04/16/1993-04/30/1994 FY93: \$0 TOTAL: \$0  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
M F LARSEN GSFC/L J EARLY 13-Physics  
....R H PLESS

**NAG 9-414** **Clemson University - Clemson** **7225**  
ORIGIN OF THE SOLAR SYSTEM :ISOTOPIC ANOMOLIES AND  
CHEMICAL MEMORY  
*Period* *Obligations*  
02/05/1990-03/01/1994 FY93: \$0 TOTAL: \$119,915  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
D D CLAYTON JSC/I D BROWNE 19-Phys Sci, NEC

**NASA'S UNIVERSITY PROGRAM**  
**SOUTH CAROLINA (Continued)**

**NAG 9-559**      **Clemson University - Clemson**      **7226**  
 NEURAL ARCHITECTURES FOR ADAPTIVE CONTROL  
*Period*      *Obligations*  
 09/30/1991-09/30/1992      FY93: \$6      TOTAL: \$14,994  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
 J K PETERSON      JSC/S H GOLDSTEIN      22-Computer Science

**NAS 8-37851**      **Clemson University - Clemson**      **7234**  
 NONLINEAR WAVE-PLASMA INTERACTION STUDY  
*Period*      *Obligations*  
 09/16/1988-05/31/1993      FY93: \$4,338      TOTAL: \$412,797  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
 L M DUNCAN      MSFC/J F STONE      13-Physics

**NAGW 2305**      **Clemson University - Clemson**      **7227**  
 NUCLEAR CLUES TO SOLAR SYSTEM ORIGINS  
*Period*      *Obligations*  
 12/06/1990-10/31/1993      FY93: \$29,998      TOTAL: \$99,696  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
 D D CLAYTON      HQ/J A NUTH      19-Phys Sci, NEC

**NCC 1-127**      **Clemson University - Clemson**      **7235**  
 MECHANICAL EVALUATION OF THROUGH-THE-THICKNESS REINFORCED COMPOSITE MATERIALS  
*Period*      *Obligations*  
 07/15/1988-02/28/1994      FY93: \$0      TOTAL: \$84,930  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
 J M KENNEDY      LARC/G L FARLEY      47-Materials Engr  
                              ....H B DEXTER

**NAGW 2757**      **Clemson University - Clemson**      **7228**  
 A SEARCH FOR CELESTIAL AND SOLAR GAMMA RAY HANSIEN TS  
*Period*      *Obligations*  
 10/30/1991-04/30/1993      FY93: \$0      TOTAL: \$16,406  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
 M D LEISING      HQ/W J WAGNER      13-Physics  
                              ....K LANG

**NCC 1-182**      **Clemson University - Clemson**      **7236**  
 FACTORS AFFECTING INTERFACIAL BOND DEVELOPMENT BY INDUCTION HEATING NLPN 93-508  
*Period*      *Obligations*  
 07/21/1993-07/20/1994      FY93: \$6,000      TOTAL: \$6,000  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
 S W SHALSBY      LARC/F H FARMER      56-Medical Sciences  
 R JAMISON

**NAGW 3277**      **Clemson University - Clemson**      **7229**  
 NAGW-3277/CLEMSON UNIV/ISOTOPIC ANOMALIES AND CHEMICAL MEMORY  
*Period*      *Obligations*  
 12/04/1992-11/30/1993      FY93: \$42,603      TOTAL: \$42,603  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
 D D CLAYTON      HQ/H C BRINTON      32-Geological Sci

**NGT 00-040-045**      **Clemson University - Clemson**      **7237**  
 NGT-40045/CLEMSON UNIV/NATIONAL SPACE GRANT COLLEGE AND FELLOWSHIP PROGRAM  
*Period*      *Obligations*  
 08/19/1991-02/29/1992      FY93: \$0      TOTAL: \$320,000  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
 L M DUNCAN      HQ/E T SCHWARTZ      99-Multi-Discip

**NAGW 3480**      **Clemson University - Clemson**      **7230**  
 THE HISTORY OF THE NUCLEI COMPRISING PLANETARY MATERIALS  
*Period*      *Obligations*  
 03/27/1992-02/28/1994      FY93: \$32,598      TOTAL: \$32,598  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
 B MEYER      HQ/J BOYCE      32-Geological Sci

**NGT 00-050-419**      **Clemson University - Clemson**      **7238**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period*      *Obligations*  
 08/16/1989-06/30/1994      FY93: \$22,000      TOTAL: \$106,000  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
 W B LIGON      HQ/F C OWENS      22-Computer Science

**NAS 5-31256**      **Clemson University - Clemson**      **7231**  
 TRANSPORTABLE TELEMTRY WORKSTATION  
*Period*      *Obligations*  
 08/28/1990-02/28/1993      FY93: \$0      TOTAL: \$329,000  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
 A S COLLINS      GSFC/C T DOMINY      45-Elec Engr

**NGT 00-050-548**      **Clemson University - Clemson**      **7239**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period*      *Obligations*  
 07/29/1990-06/30/1993      FY93: \$0      TOTAL: \$66,000  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
 T D TAYLOR      HQ/F C OWENS      49-Engr, NEC

**NAS 5-31750**      **Clemson University - Clemson**      **7232**  
 PROTOFLIGHT MICRODOSIMETER  
*Period*      *Obligations*  
 07/01/1992-07/01/1993      FY93: \$41,056      TOTAL: \$96,056  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
 P J MCNULTY      GSFC/E G STASSINOPOULOS      31-Atmos Sci

**NGT 00-050-715**      **Clemson University - Clemson**      **7240**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period*      *Obligations*  
 08/30/1991-08/15/1993      FY93: \$0      TOTAL: \$44,000  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
 J G GOREE      HQ/F C OWENS      46-Mech Engr

**NAS 5-32462**      **Clemson University - Clemson**      **7233**  
 TO CONTINUE STUDY AND DEVELOPMENT OF TRANSPORTABLE TELEMTRY WORKSTATION  
*Period*      *Obligations*  
 02/25/1993-02/24/1994      FY93: \$99,262      TOTAL: \$99,262  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
 A S COLLINS      GSFC/T BENNETT      45-Elec Engr

**NGT 00-050-975**      **Clemson University - Clemson**      **7241**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period*      *Obligations*  
 08/18/1992-08/19/1994      FY93: \$11,000      TOTAL: \$33,000  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
 E G BAXA      LARC/E PRIOR      45-Elec Engr

**NASA'S UNIVERSITY PROGRAM  
SOUTH CAROLINA (Continued)**

**NGT 00-090-109      Clemson University - Clemson      7242**  
UNDERGRADUATE STUDENT RESEARCHERS PROGRAM  
*Period*      *Obligations*  
09/17/1992-08/14/1994      FY93: \$12,000      TOTAL: \$24,000  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
S J LASSER      HQ/D K RUSSELL      99-Multi-Discip

**NGT 00-090-110      Clemson University - Clemson      7243**  
UNDERGRADUATE STUDENT RESEARCHERS PROGRAM  
*Period*      *Obligations*  
09/17/1992-08/14/1993      FY93: \$0      TOTAL: \$12,000  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
S J LASSER      HQ/D K RUSSELL      99-Multi-Discip

**NGT 00-090-192      Clemson University - Clemson      7244**  
UNDERGRADUATE STUDENT RESEARCHERS PROGRAM  
*Period*      *Obligations*  
08/25/1993-08/14/1994      FY93: \$12,000      TOTAL: \$12,000  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
S LASSER      HQ/D RUSSELL      99-Multi-Discip

**NGT 00-090-193      Clemson University - Clemson      7245**  
UNDERGRADUATE STUDENT RESEARCHERS PROGRAM  
*Period*      *Obligations*  
08/27/1993-08/14/1994      FY93: \$12,000      TOTAL: \$12,000  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
S LASSER      HQ/D K RUSSELL      99-Multi-Discip

**NGT 00-090-194      Clemson University - Clemson      7246**  
UNDERGRADUATE STUDENT RESEARCHERS PROGRAM  
*Period*      *Obligations*  
08/27/1993-08/14/1994      FY93: \$12,000      TOTAL: \$12,000  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
S LASSER      HQ/D RUSSELL      99-Multi-Discip

**NGT 00-090-220      Clemson University - Clemson      7247**  
UNDERGRADUATE STUDENT RESEARCHERS (UMF) PROGRAM  
*Period*      *Obligations*  
09/23/1993-06/14/1994      FY93: \$12,000      TOTAL: \$12,000  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
S LASSER      HQ/D RUSSELL      99-Multi-Discip

**NAG 5-1634      College of Charleston      7248**  
A NASA/UNIVERSITY JOINT VENTURE IN SPACE SCIENCE ( JOVE)  
*Period*      *Obligations*  
06/14/1991-06/30/1994      FY93: \$28,000      TOTAL: \$99,600  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
M W COLGAN      GSFC/G A SOFFEN      32-Geological Sci  
P DUSTAN      ....P J SAKIMOTO

**NGT 00-040-055      College of Charleston      7249**  
SOUTH CAROLINA SPACE GRANT CONSORTIUM  
*Period*      *Obligations*  
08/13/1993-05/31/1994      FY93: \$173,000      TOTAL: \$173,000  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
M W COLGAN      HQ/E T SCHWARTZ      99-Multi-Discip

**NAG 1-1489      University of South Carolina      7250**  
CHARACTERIZATION OF CRACK GROWTH IN ALUMINUM SHEETS  
SUBJECTED TO MULTIMODE LOADING NLPN 93-105  
*Period*      *Obligations*  
02/19/1993-11/30/1993      FY93: \$67,030      TOTAL: \$67,030  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
M SUTTON      LARC/C E HARRIS      47-Materials Engr  
W CHAO

**NAG 9-169      University of South Carolina      7251**  
SCIENTIFIC STUDY OF PLANETARY MATERIALS  
*Period*      *Obligations*  
06/01/1986-06/01/1993      FY93: \$0      TOTAL: \$149,540  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
J W SHERVAIS      JSC/I D BROWNE      32-Geological Sci

**NAGW 2510      University of South Carolina      7252**  
NAGW-2510/UNIV SOUTH CAROLINA/3-D UV DETECTORS BASED  
ON ENERGY SENSITIVE SUPERCONDUCTING ELEMENTS  
*Period*      *Obligations*  
05/09/1991-02/28/1994      FY93: \$104,867      TOTAL: \$309,987  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
A K DRUKER      HQ/R STACHNIK      11-Astronomy

**NAGW 3169      University of South Carolina      7253**  
MULTISENSOR ANALYSIS OF THE ENVIRONMENTAL SENSITIVITY  
OF OIL IMPACTED  
*Period*      *Obligations*  
08/28/1992-08/31/1993      FY93: \$0      TOTAL: \$53,070  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
J JENSEN      HQ/M R HELFERT      39-Env Sci, NEC  
J MICHEL      ....D M BUTLER

**NAGW 3637      University of South Carolina      7254**  
BASALTIC VOLCANISM AND ANCIENT PLANETARY CRUSTS  
*Period*      *Obligations*  
06/04/1993-05/31/1994      FY93: \$19,991      TOTAL: \$19,991  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
J SHERVAIS      HQ/J BOYCE      32-Geological Sci

**NAG13-27      University of South Carolina      7255**  
A NASA VISITING INVESTIGATOR PROGRAM  
*Period*      *Obligations*  
09/02/1993-09/30/1994      FY93: \$50,000      TOTAL: \$50,000  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
J R JENSEN      SSC/C      39-Env Sci, NEC  
D C COWEN

**NAS13-449      University of South Carolina      7256**  
IMPROVED URBAN INFRASTRUCTURE MAPPING USING REMOTE  
SENSING AND GIS TECHNOLOGY  
*Period*      *Obligations*  
07/10/1991-07/09/1994      FY93: \$54,793      TOTAL: \$226,224  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
D J COWEN      SSC/C L HILL      72-Economics  
J R JENSEN      ....B DAVIS

**NGT 00-090-145      University of South Carolina      7257**  
UNDERGRADUATE STUDENT RESEARCHERS PROGRAM  
*Period*      *Obligations*  
09/26/1992-08/14/1994      FY93: \$12,000      TOTAL: \$24,000  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
M SUTTON      HQ/D K RUSSELL      99-Multi-Discip

# NASA'S UNIVERSITY PROGRAM SOUTH DAKOTA

## SOUTH DAKOTA

### NAG 1-542 South Dakota School of Mines & Tech 7258

MODELING AND PARAMETERIZATION OF HORIZONTALLY  
INHOMOGENEOUS CLOUD RADIATIVE PROP.

Period	Obligations	
12/07/1984-05/15/1994	FY93: \$75,000	TOTAL: \$536,588
Prin. Invest.	NASA Tech. Officer	CASE Category
S K SENGUPTA	LARC/B A WIELICKI	31-Atmos Sci

### NAG 5-386 South Dakota School of Mines & Tech 7259

RAIN VOLUME ESTIMATION OVER AREAS USING SATELLITE AND  
RADAR DATA

Period	Obligations	
01/01/1984-04/30/1993	FY93: \$0	TOTAL: \$573,327
Prin. Invest.	NASA Tech. Officer	CASE Category
P SMITH	GSFC/R F ADLER	31-Atmos Sci
T H VONDER HAAR		

### NAG 5-1477 South Dakota School of Mines & Tech 7260

RESEARCH RELATIVE TO WEATHER RADAR MEASUREMENT TECHNIQUES

Period	Obligations	
10/26/1990-08/15/1992	FY93: \$0	TOTAL: \$22,000
Prin. Invest.	NASA Tech. Officer	CASE Category
P L SMITH	GSFC/O W THIELE	31-Atmos Sci
....D A SHORT		

### NAGW 3740 South Dakota School of Mines & Tech 7261

IMPACT OF AEROSOLS GENERATED FROM BIOMASS BURNING,  
DUST STORMS, AND VOLCANOES

Period	Obligations	
09/22/1993-08/31/1996	FY93: \$36,400	TOTAL: \$36,400
Prin. Invest.	NASA Tech. Officer	CASE Category
R M WELCH	HQ/J T SUTTLES	31-Atmos Sci
....A C JANETOS		

### NAS 1-19077 South Dakota School of Mines & Tech 7262

SCIENCE INVESTIGATIONS IN SUPPORT OF CLOUDS AND THE  
EARTH'S RADIANT ENERGY SYSTEM (CERES)

Period	Obligations	
12/12/1989-12/12/1999	FY93: \$190,000	TOTAL: \$494,299
Prin. Invest.	NASA Tech. Officer	CASE Category
R M WELCH	LARC/B A WIELICKI	19-Phys Sci, NEC
....J W YOUNGBLOOD		

### NAS 5-31718 South Dakota School of Mines & Tech 7263

EOS ASTER/HIRIS INVESTIGATION

Period	Obligations	
01/09/1992-12/14/2001	FY93: \$230,000	TOTAL: \$505,000
Prin. Invest.	NASA Tech. Officer	CASE Category
R WELCH	GSFC/T BRAKE	39-Env Sci, NEC

### NCA 5-115 South Dakota School of Mines & Tech 7264

SCIENTIFIC KNOWLEDGE FOR INDIAN LEARNING AND LEADERSHIP  
(SKILL) SUMMER PROGRAM

Period	Obligations	
01/20/1993-01/31/1994	FY93: \$53,000	TOTAL: \$53,000
Prin. Invest.	NASA Tech. Officer	CASE Category
S C MCCULLOH	GSFC/P J SAKIMOTO	31-Atmos Sci
P SMITH	....T R GULL	
D J ANDERSON		

### NGT 00-030-142 South Dakota School of Mines & Tech 7265

#### NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM

Period	Obligations	
10/01/1992-08/31/1994	FY93: \$44,000	TOTAL: \$44,000
Prin. Invest.	NASA Tech. Officer	CASE Category
S A CHRISTOPHER	HQ/G ASRAR	99-Multi-Discip
....D M BUTLER		

### NGT 00-040-046 South Dakota School of Mines & Tech 7266

#### NATIONAL SPACE GRANT COLLEGE AND FELLOWSHIP PROGRAM

Period	Obligations	
03/14/1991-02/28/1994	FY93: \$173,000	TOTAL: \$493,000
Prin. Invest.	NASA Tech. Officer	CASE Category
P L SMITH	HQ/E T SCHWARTZ	99-Multi-Discip

### NGT 00-090-139 South Dakota School of Mines & Tech 7267

#### UNDERGRADUATE STUDENT RESEARCHERS PROGRAM

Period	Obligations	
09/26/1992-08/14/1994	FY93: \$12,000	TOTAL: \$24,000
Prin. Invest.	NASA Tech. Officer	CASE Category
F CAMPONE	HQ/D K RUSSELL	99-Multi-Discip

### NAG 8-258 South Dakota State University 7268

#### NGT-30141/UNIV CA @ SANTA BARBARA/GLOBAL CHANGE FELLOWSHIP PROGRAM

Period	Obligations	
11/30/1992-05/31/1994	FY93: \$62,993	TOTAL: \$62,993
Prin. Invest.	NASA Tech. Officer	CASE Category
S SCHILLER	MSFC/F SIX	99-Multi-Discip
M ROSE		

### NAG 2-492 University of South Dakota 7269

#### THE HUMAN-COMPUTER INTERFACE IN THE MODERN MISSIONCONTROL CENTER

Period	Obligations	
03/01/1988-09/30/1993	FY93: \$21,914	TOTAL: \$139,765
Prin. Invest.	NASA Tech. Officer	CASE Category
M M GRANAAS	ARC/J M SKULTETY	41-Aero Engr
....D L WHEATON		

## TENNESSEE

### NAG 5-2130 East Tennessee State University 7270

#### THE CIRCUMSTELLAR MATERIAL OF SOCKET STARS

Period	Obligations	
11/09/1992-11/14/1993	FY93: \$6,478	TOTAL: \$6,478
Prin. Invest.	NASA Tech. Officer	CASE Category
	GSFC/D WEST	11-Astronomy

### NAG 3-1430 Fisk University 7271

#### EXPERIMENTAL STUDIES ON SURFACE-GAS PLUME INTERACTIONS

Period	Obligations	
01/06/1993-12/31/1993	FY93: \$299,854	TOTAL: \$299,854
Prin. Invest.	NASA Tech. Officer	CASE Category
W E COLLINS	LERC/S R BULLOCK	13-Physics
M A GEORGE	....F M CURRAN	

**NASA'S UNIVERSITY PROGRAM**  
**TENNESSEE (Continued)**

**NAG 8-25 Fisk University 7272**  
 RESEARCH STUDY ENTITLED 'THERMAL CHARACTERIZATION OF CRYSTALS'  
*Period Obligations*  
 07/05/1984-05/09/1992 FY93: \$0 TOTAL: \$770,553  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 E SILBERMAN MSFC/J L RANDALL 13-Physics  
 ....R J WALKER

**NAG 8-158 Fisk University 7273**  
 GROWTH AND CHARACTERISTICS OF SINGLE CRYSTALS  
*Period Obligations*  
 04/26/1990-08/01/1993 FY93: \$0 TOTAL: \$278,677  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 E SILBERMAN MSFC/G H FICHTL 13-Physics  
 ....R J WALKER JR.

**NAG 8-202 Fisk University 7274**  
 THERMAL CHARACTERIZATION OF CRYSTALS  
*Period Obligations*  
 07/02/1991-08/01/1993 FY93: \$0 TOTAL: \$139,618  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 E SILBERMAN MSFC/G H FICHTL 13-Physics  
 ....R J WALKER

**NAG 8-218 Fisk University 7275**  
 JOVE  
*Period Obligations*  
 01/09/1992-05/11/1994 FY93: \$27,375 TOTAL: \$55,267  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 C MCGRUDER MSFC/F SIX 11-Astronomy

**NAGW 2925 Fisk University 7276**  
 CENTER FOR PHOTONIC MATERIALS AND DEVICES  
*Period Obligations*  
 02/28/1992-12/31/1993 FY93: \$529,830 TOTAL: \$1,040,636  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 E SILBERMAN HQ/S E MASSENBERG 13-Physics  
 ....S HARTMAN

**NCC 2-606 Fisk University 7277**  
 MUTANT STRAINS OF CYANOBACTERIUM ANABAENA VARIABI LIS WHICH EXCRETE AMMONIA AS SOURCE OF NITROGEN..  
*Period Obligations*  
 05/11/1989-08/31/1992 FY93: \$0 TOTAL: \$379,189  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M GUNASEKARAN ARC/R D MACELROY 51-Biological Sci

**NAG 3-961 Memphis State University 7278**  
 EFFECTS OF TOOTH PROFILE MODIFICATIONS  
*Period Obligations*  
 12/15/1988-11/30/1993 FY93: \$55,000 TOTAL: \$263,088  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 H H LIN LERC/F B OSWALD 46-Mech Engr  
 ....J J ZAKRAJSEK

**NAG 3-1292 Memphis State University 7279**  
 MULTI-DIMENSIONAL MODELING OF PRESSURIZATION AND EXP ULSION OF MULTI-PHASE HYDROGEN PROPELLANT  
*Period Obligations*  
 07/16/1991-07/08/1993 FY93: \$0 TOTAL: \$40,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J I HOCHSTEIN LERC/T L HARDY 46-Mech Engr

**NAG 3-1530 Memphis State University 7280**  
 MODELING OF ROCKET ENGINE DYNAMIC PERFORMANCE  
*Period Obligations*  
 09/27/1993-09/26/1994 FY93: \$35,000 TOTAL: \$35,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J I HOCHSTEIN LERC/T L HARDY 46-Mech Engr

**NAG 8-211 Memphis State University 7281**  
 FEASIBILITY STUDY OF ADAPTIVE GRID GENERATION IN LUNS CODE  
*Period Obligations*  
 10/02/1991-09/30/1993 FY93: \$0 TOTAL: \$10,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J D MO MSFC/A S CHOW 49-Engr, NEC

**NAG 9-646 Memphis State University 7282**  
 DIGITAL DATA, COMPOSITE VIDEO MULTIPLEXER AND DEMULT IPLEXER BOARDS FOR IBM PC/AT COMPATIBLE COMPUTER  
*Period Obligations*  
 09/29/1992-08/31/1993 FY93: \$15,000 TOTAL: \$0  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D L SMITH JSC/S H GOLDSTEIN 22-Computer Science

**NAGW 3338 Memphis State University 7283**  
 TECTONICS AND TOPOGRAPHY  
*Period Obligations*  
 01/13/1993-11/30/1993 FY93: \$31,121 TOTAL: \$31,121  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M A ELLIS HQ/M BALTUCK 32-Geological Sci

**NAGW 3170 Middle Tennessee State University 7284**  
 A CRI TRAINING COURSE IN REMOTE SENSING  
*Period Obligations*  
 08/18/1992-08/31/1993 FY93: \$0 TOTAL: \$49,100  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 O'FARRELL HQ/M R HELFERT 39-Env Sci, NEC  
 R ZAWISLAK ....D M BUTLER

**NAG 1-863 Tennessee State University 7285**  
 ROBUST CONTROL WITH STRUCTURED PERTURBATIONS  
*Period Obligations*  
 03/14/1988-06/30/1993 FY93: \$0 TOTAL: \$189,882  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 L KEEL LARC/J N JUANG 42-Astro Engr  
 ....W K BELVIN

**NAG 3-1171 Tennessee State University 7286**  
 TSU RESEARCH PROJECT FOR INCREASING THE POOL OF MI NORITY ENGINEERS  
*Period Obligations*  
 05/07/1990-07/14/1994 FY93: \$107,671 TOTAL: \$259,371  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D B ROGERS LERC/R F LAWRENCE 41-Aero Engr  
 ....R L BONDURANT



**NASA'S UNIVERSITY PROGRAM**  
**TENNESSEE (Continued)**

**NAG 3-1471 Tennessee State University 7287**  
 ROBUST INTEGRATED NEURO CONTROLLER FOR COMPLEX DYN  
 AMIC SYSTEMS  

Period	Obligations	
05/31/1993-04/09/1994	FY93: \$191,836	TOTAL: \$191,836
Prin. Invest.	NASA Tech. Officer	CASE Category
M S ZEIN-SABATTO	LERC/W C MERRILL	41-Aero Engr
MARPAKA		
M MALKANI		

**NAG 3-1479 Tennessee State University 7288**  
 A STUDY OF RELATIONSHIP BETWEEN PROBABILISTIC DESI GN  
 AND AXIOMETRIC DESIGN METHODOLOGY  

Period	Obligations	
05/14/1993-05/09/1994	FY93: \$400,702	TOTAL: \$400,702
Prin. Invest.	NASA Tech. Officer	CASE Category
C ONWVBIXO	LERC/M H HIRSCHBERG	49-Engr, NEC
F MISHU	....D HOPKINS	
F C CHEN		

**NAG 5-1474 Tennessee State University 7289**  
 LONG TERM OBSERVATIONS OF 31 CYGNI AND ZETA-AURIGA E  
 BINARIES WITH M GIANTS: DELTA SAGITTAE ET AL II  

Period	Obligations	
10/16/1990-01/31/1994	FY93: \$49,880	TOTAL: \$144,480
Prin. Invest.	NASA Tech. Officer	CASE Category
J A EATON	GSFC/D WEST	11-Astronomy

**NAG 5-2109 Tennessee State University 7290**  
 PARAMETRIC ROBUST CONTROL AND SYSTEM IDENTIFICATIO N:  
 UNIFIED APPROACH  

Period	Obligations	
09/28/1992-09/30/1993	FY93: \$89,333	TOTAL: \$89,333
Prin. Invest.	NASA Tech. Officer	CASE Category
L KEEL	GSFC/H P FRISCH	42-Astro Engr

**NAG 8-111 Tennessee State University 7291**  
 PHOTOMETRIC AND SPECTROSCOPIC STUDY OF  
 CHROMOSPHERICALLY ACTIVESTARS  

Period	Obligations	
06/09/1988-07/14/1993	FY93: \$0	TOTAL: \$544,282
Prin. Invest.	NASA Tech. Officer	CASE Category
M R BUSBY	MSFC/J L RANDALL	11-Astronomy
	....R J WALKER	

**NAG 9-455 Tennessee State University 7292**  
 TESTING SPACE RADIATION ENVIORNMENT  

Period	Obligations	
06/29/1990-08/31/1993	FY93: \$0	TOTAL: \$119,750
Prin. Invest.	NASA Tech. Officer	CASE Category
M AWIPI	JSC/E M EMMANUEL	31-Atmos Sci

**NGT 00-090-127 Tennessee State University 7293**  
 UNDERGRADUATE STUDENT RESEARCHERS PROGRAM  

Period	Obligations	
09/24/1992-08/14/1994	FY93: \$12,000	TOTAL: \$24,000
Prin. Invest.	NASA Tech. Officer	CASE Category
S DEVGAN	HQ/D K RUSSELL	99-Multi-Discip

**NAG 8-206 Tennessee Technological University 7294**  
 INVESTIGATION OF COLLISOINAL BROADENING MECHANISMS FOR  
 ATOMIC SPECIES ON COMBUSTED H2/O2  

Period	Obligations	
07/22/1991-10/22/1993	FY93: \$19,852	TOTAL: \$39,852
Prin. Invest.	NASA Tech. Officer	CASE Category
D C VENTRICE	MSFC/W T POWERS	11-Astronomy
V P FORTNER		

**NAG 9-614 Tennessee Technological University 7295**  
 COUPLED MACE FILTERS FOR OPTICAL PATTERN RECOGNITI ON  

Period	Obligations	
06/16/1992-06/01/1993	FY93: \$0	TOTAL: \$25,000
Prin. Invest.	NASA Tech. Officer	CASE Category
P K RAJAN	JSC/R JUDAY	49-Engr, NEC

**NAG 9-710 Tennessee Technological University 7296**  
 DESIGN OF SYNTHETIC ESTIMATION FILTERS  

Period	Obligations	
08/30/1993-01/08/1994	FY93: \$15,000	TOTAL: \$15,000
Prin. Invest.	NASA Tech. Officer	CASE Category
P K BAJAN	JSC/R JUDAY	22-Computer Science

**NCC 8-8 Tennessee Technological University 7297**  
 EVALUATION OF STRAIN INDUCED SIGNAL ATTENUATION  
 MEASURED BY OPTICAL FIBERS EMBEDDED IN COMPOSITE  

Period	Obligations	
07/26/1991-09/30/1992	FY93: \$244	TOTAL: \$29,756
Prin. Invest.	NASA Tech. Officer	CASE Category
D A WILSON	MSFC/C E WILKERSON	47-Materials Engr
J R HOUGHTON		

**NGT 00-050-731 Tennessee Technological University 7298**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  

Period	Obligations	
08/30/1991-08/31/1994	FY93: \$22,000	TOTAL: \$66,000
Prin. Invest.	NASA Tech. Officer	CASE Category
S HAN	HQ/F C OWENS	46-Mech Engr

**NAG 1-844 University of Tennessee - Knoxville 7299**  
 NEW INTERACTION THEORY OF VORTICITY FIELD AND SOLI D  
 BODY WITH APPLICATION TO WING DESIGN  

Period	Obligations	
01/21/1988-01/31/1993	FY93: \$0	TOTAL: \$231,759
Prin. Invest.	NASA Tech. Officer	CASE Category
J M WU	LARC/P J BOBBITT	41-Aero Engr
J Z WU	....L E PUTNAM	

**NAG 1-1008 University of Tennessee - Knoxville 7300**  
 ROBOTIC CONTROL OF NASA LABORATORY TELEROBOTIC  
 MANIPULATOR  

Period	Obligations	
06/16/1989-12/31/1993	FY93: \$38,862	TOTAL: \$188,824
Prin. Invest.	NASA Tech. Officer	CASE Category
R V DUBEY	LARC/W W HANKINS	46-Mech Engr
	....L K BARKER	

**NASA'S UNIVERSITY PROGRAM  
TENNESSEE (Continued)**

**NAG 1-1368 University of Tennessee - Knoxville 7301**  
AERODYNAMIC/ACOUSTIC COMPUTATION OF HELICOPTER ROTORS  
INCLUDING BLADE/VORTEX IMPINGEMENT

Period	Obligations	
12/12/1991-12/09/1993	FY93: \$62,377	TOTAL: \$122,334
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
J S STEINHOFF	LARC/C L BURLEY	41-Aero Engr
	....T F BROOKS	

**NAG 8-166 University of Tennessee - Knoxville 7308**  
IDENTIFICATION AND INTERPRETATION OF PATTERN IN ROCKET  
ENGINE DATA

Period	Obligations	
05/22/1990-01/21/1993	FY93: \$0	TOTAL: \$225,003
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
M ALI	MSFC/D P VALLELY	41-Aero Engr

**NAG 3-876 University of Tennessee - Knoxville 7302**  
CONTAINERLESS GROWTH

Period	Obligations	
03/15/1988-01/31/1994	FY93: \$25,000	TOTAL: \$227,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
B F OLIVER	LERC/M V NATHAL	47-Materials Engr
C R BROOKS		
D BRUNS		

**NAG 8-862 University of Tennessee - Knoxville 7309**  
DEVELOPMENT OF A RESEARCH CODE AND PARAMETRIC STUDY  
OF THE TEMPERATURE AND PRESSURE IN A CHARRIN

Period	Obligations	
03/11/1991-02/28/1994	FY93: \$31,998	TOTAL: \$224,869
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
M KEYHANI	MSFC/K E MCCOY	46-Mech Engr

**NAG 3-1159 University of Tennessee - Knoxville 7303**  
ARCJET SPACE THRUSTERS

Period	Obligations	
04/12/1990-05/06/1993	FY93: \$0	TOTAL: \$245,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
D KEEFER	LERC/F M CURRAN	42-Astro Engr

**NAG 9-58 University of Tennessee - Knoxville 7310**  
PETROLOGIC STDS METEORITE GROUPS

Period	Obligations	
04/01/1983-07/01/1993	FY93: \$0	TOTAL: \$498,212
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
H Y MCSWEEN	JSC/I D BROWNE	32-Geological Sci
K C MISRA		

**NAG 3-1480 University of Tennessee - Knoxville 7304**  
EFF OF THERM OXID AND SURF MOD OF CARBON FIBER ON TH  
E MECH AND FRACT BEHAV OF CARB FIB/PMR-15 COMPOSITE

Period	Obligations	
05/03/1993-07/23/1993	FY93: \$6,875	TOTAL: \$6,875
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
M S MADHUKAR	LERC/K J BOWLES	47-Materials Engr

**NAG 9-409 University of Tennessee - Knoxville 7311**  
LUNAR SIMULANTS

Period	Obligations	
01/02/1990-06/01/1994	FY93: \$15,000	TOTAL: \$80,869
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
L A TAYLOR	JSC/D S MCKAY	32-Geological Sci

**NAG 3-1516 University of Tennessee - Knoxville 7305**  
DEVELOPMENT OF A METHOD FOR FAST NUMERICAL SOLUTIO N  
OF HELMHOLTZ ATYPE PROBLEMS

Period	Obligations	
07/22/1993-10/15/1993	FY93: \$49,360	TOTAL: \$49,360
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
J CARUTHERS	LERC/D L HUFF	41-Aero Engr

**NAG 9-415 University of Tennessee - Knoxville 7312**  
CRUST/MANTLE INTERACTIONS IN PLANETARY EVOLUTION

Period	Obligations	
05/11/1990-02/01/1994	FY93: \$0	TOTAL: \$463,200
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
L A TAYLOR	JSC/I D BROWNE	19-Phys Sci, NEC

**NAG 5-2083 University of Tennessee - Knoxville 7306**  
SOFTWARE AND INFORMATION DISTRIBUTION VIA NETLIB

Period	Obligations	
08/26/1992-02/28/1993	FY93: \$50,000	TOTAL: \$50,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
J DONGARA	GSFC/B E JACOBS	22-Computer Science

**NAGW 125 University of Tennessee - Knoxville 7313**  
SECTROSCOPY OF METHANE FOR THE ATMOSPHERES OF THE  
OUTER PLANETS

Period	Obligations	
03/01/1981-12/31/1993	FY93: \$26,998	TOTAL: \$718,795
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
K FOX	HQ/J T BERGSTRALH	31-Atmos Sci
	....W L QUAIDE	

**NAG 8-132 University of Tennessee - Knoxville 7307**  
STUDY DROPLET BEHAVIOR AT SUPER CRITICAL PRESSURES

Period	Obligations	
09/29/1989-11/15/1992	FY93: \$0	TOTAL: \$190,222
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
S M JENG	MSFC/R H ESKRIDGE	46-Mech Engr
	....F D BACHTEL	

**NAGW 2015 University of Tennessee - Knoxville 7314**  
CONFERENCE ON LABORATORIES FOR PLANETARY ATMOSPHERE  
RESEARCH

Period	Obligations	
04/02/1990-12/31/1993	FY93: \$30,924	TOTAL: \$103,329
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
K FOX	HQ/J BERGSTRALH	11-Astronomy

**NASA'S UNIVERSITY PROGRAM  
TENNESSEE (Continued)**

**NAGW 2800 University of Tennessee - Knoxville 7315**  
LIGHT STABLE ISOTOPE ANALYSIS OF METEORITES BY ION MICROPROBE

Period	Obligations	
01/06/1992-07/31/1994	FY93: \$44,425	TOTAL: \$87,238
Prin. Invest.	NASA Tech. Officer	CASE Category
H Y MCSWEEN	HQ/J K ALEXANDER	19-Phys Sci, NEC
	....D A HOLLAND	

**NAGW 3141 University of Tennessee - Knoxville 7316**  
EMBRYOGENESIS OF GRAMINEAL IN MICROGRAVITY

Period	Obligations	
07/24/1992-07/31/1993	FY93: \$0	TOTAL: \$43,000
Prin. Invest.	NASA Tech. Officer	CASE Category
B V CONGER	HQ/T W HALSTEAD	51-Biological Sci

**NAGW 3453 University of Tennessee - Knoxville 7317**  
PETROGENESIS OF THE LUNAR CRUST AND MANTLE

Period	Obligations	
03/29/1993-01/31/1994	FY93: \$125,360	TOTAL: \$125,360
Prin. Invest.	NASA Tech. Officer	CASE Category
L TAYLOR	HQ/H C BRINTON	32-Geological Sci

**NAGW 3578 University of Tennessee - Knoxville 7318**  
REMOTE SENSING OF OCEAN COLOR IN THE HIGH ARCTIC

Period	Obligations	
05/05/1993-02/28/1994	FY93: \$45,000	TOTAL: \$45,000
Prin. Invest.	NASA Tech. Officer	CASE Category
G COTA	HQ/D E WICKLAND	33-Oceanography
	....A C JANETOS	

**NAGW 3621 University of Tennessee - Knoxville 7319**  
METEORITE PETROGENESIS

Period	Obligations	
06/17/1993-03/31/1994	FY93: \$89,515	TOTAL: \$89,515
Prin. Invest.	NASA Tech. Officer	CASE Category
H MCSWEEN	HQ/J BOYCE	11-Astronomy

**NAG13-20 University of Tennessee - Knoxville 7320**  
TECHNOLOGY DEVELOPMENT/THERMAL PROPERTY DATA SUBROUTINE FOR LH2 AND LOX

Period	Obligations	
03/05/1992-02/28/1993	FY93: \$166	TOTAL: \$19,391
Prin. Invest.	NASA Tech. Officer	CASE Category
R J SCHULZ	SSC/W W ST. CYR	29-Math/Computer, NEC

**NAS 8-38493 University of Tennessee - Knoxville 7321**  
RAPID MONITORING OF WATER RECLAMATION OF THE SPACE STATION

Period	Obligations	
09/24/1990-09/23/1993	FY93: \$0	TOTAL: \$265,000
Prin. Invest.	NASA Tech. Officer	CASE Category
D C WHITE	MSFC/E B RODGERS	54-Env Biology
D E NIVENS	....C EDWARDS	
M W MITTLEMAN		

**NGT 00-050-646 University of Tennessee - Knoxville 7322**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM

Period	Obligations	
08/24/1990-10/31/1992	FY93: \$0	TOTAL: \$44,000
Prin. Invest.	NASA Tech. Officer	CASE Category
S M JENG	HQ/F C OWENS	41-Aero Engr

**NGT 00-050-703 University of Tennessee - Knoxville 7323**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM

Period	Obligations	
06/25/1991-07/31/1992	FY93: \$0	TOTAL: \$22,000
Prin. Invest.	NASA Tech. Officer	CASE Category
C F LO	HQ/F C OWENS	46-Mech Engr

**NGT 00-050-870 University of Tennessee - Knoxville 7324**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM

Period	Obligations	
05/06/1992-06/30/1994	FY93: \$22,000	TOTAL: \$44,000
Prin. Invest.	NASA Tech. Officer	CASE Category
H V MCSWEEN	JSC/S GOLDSTEIN	32-Geological Sci

**NGT 00-050-876 University of Tennessee - Knoxville 7325**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM

Period	Obligations	
05/29/1992-09/30/1994	FY93: \$22,000	TOTAL: \$44,000
Prin. Invest.	NASA Tech. Officer	CASE Category
T D MCCAY	MSFC/F SIX	41-Aero Engr

**NGT 00-050-969 University of Tennessee - Knoxville 7326**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM

Period	Obligations	
07/24/1992-06/30/1994	FY93: \$22,000	TOTAL: \$44,000
Prin. Invest.	NASA Tech. Officer	CASE Category
W E BLASS	GSFC/G SOFFEN	13-Physics

**NGT 00-051-048 University of Tennessee - Knoxville 7327**  
GRADUATE STUDENT RESEARCHERS PROGRAM

Period	Obligations	
07/14/1993-08/31/1994	FY93: \$22,000	TOTAL: \$22,000
Prin. Invest.	NASA Tech. Officer	CASE Category
R J SCHULZ	LERC/F MONTEGANI	41-Aero Engr

**NGT 00-051-052 University of Tennessee - Knoxville 7328**  
GRADUATE STUDENT RESEARCHERS PROGRAM

Period	Obligations	
05/25/1993-06/30/1994	FY93: \$22,000	TOTAL: \$22,000
Prin. Invest.	NASA Tech. Officer	CASE Category
L A TAYLOR	JSC/S GOLDSTEIN	32-Geological Sci

**NAG 2-494 University of Tennessee - Memphis 7329**  
REGULATION OF ERYTHROPOIESIS IN RATS DURING SPACE FLIGHT

Period	Obligations	
01/01/1988-09/30/1993	FY93: \$256,655	TOTAL: \$1,151,651
Prin. Invest.	NASA Tech. Officer	CASE Category
A T ICHIKI	ARC/W E HINDS	51-Biological Sci
Z ALLEBBAN	....G A JAHNS	
L GIBSON		

**NAG 1-1464 Vanderbilt University 7330**  
SOLAR RADIATION EFFECTS ON GLASSES

Period	Obligations	
01/29/1993-01/31/1994	FY93: \$74,998	TOTAL: \$74,998
Prin. Invest.	NASA Tech. Officer	CASE Category
D L KINSER	LARC/J L JONES	47-Materials Engr
	....W H KINARD	

**NASA'S UNIVERSITY PROGRAM**  
**TENNESSEE (Continued)**

**NAG 1-1484** **Vanderbilt University** **7331**  
 ADAPTIVE STRUCTURES AND DEVICES FOR SPACE APPLICATIONS  
*Period* *Obligations*  
 02/22/1993-11/30/1993 FY93: \$75,000 TOTAL: \$75,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 E GARCIA LARC/G C HORNER 49-Engr, NEC

**NAG 2-834** **Vanderbilt University** **7332**  
 INDUCTIVE APPROACHES TO IMPROVING DIAGNOSIS AND DESIGN FOR DIAGNOSABILITY  
*Period* *Obligations*  
 04/29/1993-09/30/1993 FY93: \$30,000 TOTAL: \$30,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 D H FISHER ARC/P E FRIEDLAND 22-Computer Science  
 ....P LAIRD

**NAG 3-1352** **Vanderbilt University** **7333**  
 MECHANICAL SYSTEM RELIABILITY FOR LONG LIFE SPACE SYSTEMS  
*Period* *Obligations*  
 05/21/1992-05/31/1994 FY93: \$26,773 TOTAL: \$53,581  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 T A CRUSE LERC/C C CHAMIS 41-Aero Engr

**NAG 3-1372** **Vanderbilt University** **7334**  
 MULTI-DISCIPLINARY SYSTEM RELIABILITY  
*Period* *Obligations*  
 11/03/1992-09/30/1993 FY93: \$0 TOTAL: \$32,302  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 S MAHADEVAN LERC/C C CHAMIS 41-Aero Engr

**NAG 5-1754** **Vanderbilt University** **7335**  
 AN IRAS STUDY OF HERBIG AE/BE STARS AND FU ORIONIS STARS  
*Period* *Obligations*  
 08/19/1991-08/31/1993 FY93: \$0 TOTAL: \$29,953  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 D A WEINTRAUB GSFC/D WEST 11-Astronomy

**NAG 8-116** **Vanderbilt University** **7336**  
 DEVELOPMENT OF ROBOSIM FOR ACADEMIC/INDUSTRIAL USE.  
*Period* *Obligations*  
 01/18/1989-09/10/1992 FY93: \$0 TOTAL: \$259,561  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 G E COOK MSFC/K B HERNANDEZ 45-Elec Engr  
 J SZTIPANOVITZ ....E HINMER  
 L E JOHNSON

**NAG 8-151** **Vanderbilt University** **7337**  
 JOVVE PILOT RESEARCH STUDY  
*Period* *Obligations*  
 03/19/1990-04/30/1994 FY93: \$33,550 TOTAL: \$92,550  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 A M STRAUSS MSFC/C R CHAPPELL 11-Astronomy  
 ....N F SIX

**NAG 8-156** **Vanderbilt University** **7338**  
 SOLAR RADIATION EFFECTS ON GLASSES  
*Period* *Obligations*  
 04/25/1990-06/17/1993 FY93: \$0 TOTAL: \$133,860  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 D L KINSEY MSFC/D S TUCKER 47-Materials Engr  
 ....R J HARWELL

**NAG 8-205** **Vanderbilt University** **7339**  
 NUCLEATION AND GROWTH OF ROLLING CONTRACT FAILURE OF 440C  
*Period* *Obligations*  
 07/25/1991-10/24/1992 FY93: \$0 TOTAL: \$50,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 G T HAHN MSFC/S J GENTZ 47-Materials Engr  
 P C RUBIN ....R A PARR  
 C A BASTIAS

**NAG 8-765** **Vanderbilt University** **7340**  
 CONTAINERLESS PROCESSING OF REFRACTORY METALS AND ALLOYS.  
*Period* *Obligations*  
 03/01/1989-05/14/1994 FY93: \$120,000 TOTAL: \$650,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 R J BAYUZICK MSFC/M B ROBINSON 47-Materials Engr

**NAG 8-832** **Vanderbilt University** **7341**  
 CONTAINERLESS PROCESSING OF OXIDE SUPERCONDUCTORS  
*Period* *Obligations*  
 06/05/1990-08/31/1994 FY93: \$150,000 TOTAL: \$450,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 H HOFMEISTER MSFC/M VLASSE 13-Physics  
 R J BAYUZICK

**NAG 8-849** **Vanderbilt University** **7342**  
 EFFECTS ON NUCLEATION BY CONTAINERLESS PROCESSING IN LOW GRAVITY  
*Period* *Obligations*  
 02/26/1991-02/24/1993 FY93: \$0 TOTAL: \$555,999  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 R BAYUZICK MSFC/R C DARTY 12-Chemistry

**NAG 8-978** **Vanderbilt University** **7343**  
 EFFECTS ON NUCLEATION BY CONTAINERLESS PROCESSING  
*Period* *Obligations*  
 07/09/1993-03/31/1994 FY93: \$280,000 TOTAL: \$280,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 R J BAYUZICK MSFC/R C DARTY 12-Chemistry  
 W H HOFMEISTER

**NAG 9-563** **Vanderbilt University** **7344**  
 THE ANEMIA OF MICROGRAVITY AND RECUMENCY: ROLE OF SYMPATHETIC NEURAL CNTRL OF ERYTHROPOIETIN PRODUCT  
*Period* *Obligations*  
 10/01/1991-10/01/1994 FY93: \$75,000 TOTAL: \$232,600  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 D ROBERTSON JSC/P A WHITSON 56-Medical Sciences

**NAGW 810** **Vanderbilt University** **7345**  
 CENTER FOR SPACE PROCESSING OF ENGINEERING MATERIALS  
*Period* *Obligations*  
 09/15/1985-10/31/1992 FY93: \$15,000 TOTAL: \$7,625,488  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 K Y BAYUZICK HQ/W ORAN 47-Materials Engr  
 J SHARRAR ....R P WHITTEN

**NASA'S UNIVERSITY PROGRAM**  
**TENNESSEE (Continued)**

**NAGW 1707** **Vanderbilt University** **7346**  
ENCAPSULATED LIVING CELLS AS A CURE OF HORMONE DEFICIENCY  

Period	Obligations	
06/21/1989-01/31/1994	FY93: \$735,784 TOTAL: \$950,784	
Prin. Invest.	NASA Tech. Officer	CASE Category
T G WANG	HQ/R H OTT	56-Medical Sciences
	....H J CLARKS	

**NCC 3-187** **Vanderbilt University** **7353**  
MECHANICAL TESTING PROGRAM FOR THERMAL BARRIER COATING DEVELOPMENT SUPPORT  

Period	Obligations	
11/09/1990-12/14/1993	FY93: \$84,839 TOTAL: \$254,929	
Prin. Invest.	NASA Tech. Officer	CASE Category
T A CRUSE	LERC/R A MILLER	46-Mech Engr
T S KELLER	....W J BRINDLEY	

**NAGW 2030** **Vanderbilt University** **7347**  
HUMAN PERFORMANCE ENHANCEMENT AND EVALUATION IN SPACE AND LUNAR ENVIRONMENTS  

Period	Obligations	
04/10/1990-09/30/1993	FY93: \$89,994 TOTAL: \$299,941	
Prin. Invest.	NASA Tech. Officer	CASE Category
A M STRAUSS	HQ/G I JOHNSTON	45-Elec Engr

**NGT 00-040-021** **Vanderbilt University** **7354**  
NATIONAL SPACE GRANT COLLEGE AND FELLOWSHIP PROGRAM ACTIVITIES OF TENNESSEE VALLEY AEROSPACE CORP.  

Period	Obligations	
03/13/1990-01/31/1994	FY93: \$385,202 TOTAL: \$1,355,202	
Prin. Invest.	NASA Tech. Officer	CASE Category
H M STRAUSS	HQ/E T SCHWARTZ	99-Multi-Discip

**NAGW 2473** **Vanderbilt University** **7348**  
GROUND-BASED STUDIES OF THE DYNAMICS OF CHARGED  

Period	Obligations	
06/17/1991-12/31/1994	FY93: \$250,000 TOTAL: \$750,000	
Prin. Invest.	NASA Tech. Officer	CASE Category
T G WANG	HQ/B M CARPENTER	13-Physics

**NGT 00-050-702** **Vanderbilt University** **7355**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  

Period	Obligations	
04/19/1991-05/31/1993	FY93: \$0 TOTAL: \$44,000	
Prin. Invest.	NASA Tech. Officer	CASE Category
T A CRUSE	HQ/E SCHWARTZ	44-Civil Engr

**NAGW 2844** **Vanderbilt University** **7349**  
NAGW-2844/VANDERBILT UNIV/EVALUATION OF MICROSTRUCTURAL DEVELOPMENT IN BULK, UNDERCOOLED ALLOYS  

Period	Obligations	
01/31/1992-11/30/1993	FY93: \$105,000 TOTAL: \$210,000	
Prin. Invest.	NASA Tech. Officer	CASE Category
R N GRUGEL	HQ/B M CARPENTER	13-Physics

**NGT 00-050-883** **Vanderbilt University** **7356**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  

Period	Obligations	
05/06/1992-06/30/1994	FY93: \$22,000 TOTAL: \$44,000	
Prin. Invest.	NASA Tech. Officer	CASE Category
E GARCIA	MSFC/F SIX	46-Mech Engr

**NAGW 3385** **Vanderbilt University** **7350**  
RELATIVE ABUNDANCE OF ICES IN THE DISKS OF T TAURI STARS: IMPLICATIONS FOR COMET FORMATION  

Period	Obligations	
02/16/1993-02/28/1994	FY93: \$15,000 TOTAL: \$15,000	
Prin. Invest.	NASA Tech. Officer	CASE Category
D A WEINTRAUB	HQ/J A NUTH	19-Phys Sci, NEC

**NGT 00-050-946** **Vanderbilt University** **7357**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  

Period	Obligations	
06/22/1992-06/30/1994	FY93: \$22,000 TOTAL: \$44,000	
Prin. Invest.	NASA Tech. Officer	CASE Category
R PITZ	LERC/F MONTEGANI	46-Mech Engr

**NCC 2-645** **Vanderbilt University** **7351**  
IMPROVING PERFORMANCE THROUGH CONCEPT FORMATION AND CONCEPT CLUSTERING  

Period	Obligations	
09/21/1989-09/30/1992	FY93: \$151 TOTAL: \$218,318	
Prin. Invest.	NASA Tech. Officer	CASE Category
D H FISHER	ARC/P E FRIEDLAND	22-Computer Science
	....P D LAIRD	

**NGT 00-051-044** **Vanderbilt University** **7358**  
GRADUATE STUDENT RESEARCHERS PROGRAM  

Period	Obligations	
06/01/1993-06/30/1994	FY93: \$22,000 TOTAL: \$22,000	
Prin. Invest.	NASA Tech. Officer	CASE Category
E GARCIA	MSFC/F SIX	46-Mech Engr

**NCC 2-696** **Vanderbilt University** **7352**  
MECHANISMS OF CHANGES IN THE CONTROL OF BLOOD PRESSURE DURING BED REST  

Period	Obligations	
10/25/1990-09/30/1993	FY93: \$0 TOTAL: \$377,348	
Prin. Invest.	NASA Tech. Officer	CASE Category
D M ROBERTSON	ARC/J VERNIKOS	56-Medical Sciences

**NGT 00-051-053** **Vanderbilt University** **7359**  
GRADUATE STUDENT RESEARCHERS PROGRAM  

Period	Obligations	
05/06/1993-06/30/1994	FY93: \$21,212 TOTAL: \$21,212	
Prin. Invest.	NASA Tech. Officer	CASE Category
T A CRUSE	LERC/F MONTEGANI	46-Mech Engr

**NASA'S UNIVERSITY PROGRAM  
TEXAS**

**TEXAS**

**NAG 2-500 Baylor College of Medicine 7360**  
REGULATION OF BLOOD VOLUME DURING SPACEFLIGHT  
*Period* *Obligations*  
03/01/1988-10/31/1993 FY93: \$230,757 TOTAL: \$754,807  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
C P ALFREY ARC/A D MANDEL 51-Biological Sci  
R G NACHTMAN ....H A LEON

**NAG 9-130 Baylor College of Medicine 7361**  
PHYSIOLOGICAL MONITORING MAGNETIC IMAG  
*Period* *Obligations*  
04/01/1986-04/01/1994 FY93: \$80,000 TOTAL: \$817,841  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
A LEBLANC JSC/V SCHNEIDER 56-Medical Sciences

**NAGW 1691 Baylor College of Medicine 7362**  
GRADIENT CENTRIFUGATION DURING SLEEP AND EXERCISE  
*Period* *Obligations*  
02/16/1989-11/30/1993 FY93: \$0 TOTAL: \$665,258  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
D CARDUS HQ/J K ALEXANDER 56-Medical Sciences  
....D A HOLLAND

**NAGW 2862 Baylor College of Medicine 7363**  
DEVELOPING SUSPENSION CULTURES TO STUDY CELL POLARITY  
*Period* *Obligations*  
01/31/1992-02/28/1994 FY93: \$121,219 TOTAL: \$236,776  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J I MULHOLLAND HQ/J K ALEXANDER 51-Biological Sci  
....D A HOLLAND

**NAS 9-14662 Baylor College of Medicine 7364**  
SUPPORT TO GROUND-BASED STUDIES FOR FUTURE FLIGHT  
*Period* *Obligations*  
06/01/1975-03/01/1994 FY93: \$100,000 TOTAL: \$961,041  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
C ALFREY JSC/H LANE 56-Medical Sciences

**NAS 9-18024 Baylor College of Medicine 7365**  
FLIGHT EXPERIMENT/ERYTHROKINETICS  
*Period* *Obligations*  
12/01/1988-07/31/1994 FY93: \$134,000 TOTAL: \$624,950  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
C P ALFREY JSC/F BOOKER 56-Medical Sciences

**NAS 9-18065 Baylor College of Medicine 7366**  
ANALYSIS ELECTROPHORESIS SAMPLES  
*Period* *Obligations*  
03/21/1989-12/31/1993 FY93: \$24,800 TOTAL: \$222,900  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
M Z ALASSI JSC/D MORRISON 56-Medical Sciences  
R A WELCH

**NAS 9-18076 Baylor College of Medicine 7367**  
MAGNETIC RESONANCE IMAGING AFTER EXPOSURE TO MICROGRAVITY  
*Period* *Obligations*  
06/01/1989-01/01/1994 FY93: \$0 TOTAL: \$105,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
A LEBLANC JSC/B LEVITAN 56-Medical Sciences

**NAS 9-18952 Baylor College of Medicine 7368**  
MAGNETIC RESONANCE IMAGING AFTER EXPOSURE TO MICROGRAVITY  
*Period* *Obligations*  
07/28/1993-03/31/1997 FY93: \$10,000 TOTAL: \$10,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
A D LEBLANC JSC/A L PLAZA 56-Medical Sciences

**NCC 9-23 Baylor College of Medicine 7369**  
DEVELOPMENT AND EVALUATION OF A MINIATURE AXIAL FLOW PUMP  
*Period* *Obligations*  
02/03/1993-01/01/1994 FY93: \$210,000 TOTAL: \$210,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
M E DEBAKEY JSC/R J BOZEMAN 56-Medical Sciences  
G P NOON

**NAG 9-708 Baylor University 7370**  
PHYSIOLOGICAL MONITORING WITH MAGNETIC RESONANCE IMAGING  
*Period* *Obligations*  
08/16/1993-08/01/1994 FY93: \$208,899 TOTAL: \$208,899  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
A LEBLANC JSC/L TAGGART 56-Medical Sciences

**NAG 9-376 Lamar University 7371**  
LUNAR VOLATILE STUDY  
*Period* *Obligations*  
03/01/1989-05/01/1992 FY93: \$7,448 TOTAL: \$275,671  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J JORDAN JSC/D S MCKAY 32-Geological Sci

**NAG 9-539 Lamar University 7372**  
INFLUENCE OF MASS REPRESENTATION IN THE EQUATIONS FOR ROTATING FLEXIBLE STRUCTURES  
*Period* *Obligations*  
07/18/1991-07/01/1992 FY93: \$0 TOTAL: \$60,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
P R CORDER JSC/D A HAMILTON 46-Mech Engr

**NAG 9-561 Lamar University 7373**  
EVALUATION OF ACTUATOR ENERGY STORAGE AND POWER SOURCE SYSTEMS FOR SPACECRAFT APPLICATIONS  
*Period* *Obligations*  
10/03/1991-10/01/1993 FY93: \$0 TOTAL: \$33,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
W E SIMON JSC/S FISHER 45-Elec Engr

**NASA'S UNIVERSITY PROGRAM  
TEXAS (Continued)**

**NAG 9-585 Lamar University 7374**  
ION SPUTTER PROBE FOR IMPLANTED SOLAR WIND GASES IN LUNAR MATERIALS  
*Period Obligations*  
05/15/1992-06/01/1993 FY93: \$0 TOTAL: \$93,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J L JORDAN JSC/T A SULLIVAN 32-Geological Sci

**NAG 9-695 Lamar University 7382**  
LOCOMOTION TRAINING OF LEGGED ROBOTS USING HYBRID MACHINE LEARNING TECHNIQUES  
*Period Obligations*  
06/29/1993-09/01/1994 FY93: \$50,000 TOTAL: \$50,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
V D NGUYEN JSC/N H CHAFFEE 29-Math/Cmputer,NEC

**NAG 9-613 Lamar University 7375**  
ABSORPTION HEAT PUMP FOR SPACE APPLICATION  
*Period Obligations*  
05/21/1992-01/01/1994 FY93: \$0 TOTAL: \$60,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
W E SIMON JSC/C H LIN 46-Mech Engr

**NAG 9-696 Lamar University 7383**  
ANAEROBIC WASTE WATER TREATMENT PROCESS  
*Period Obligations*  
07/09/1993-09/01/1994 FY93: \$40,000 TOTAL: \$40,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
K LI JSC/D M HOY 54-Env Biology

**NAG 9-619 Lamar University 7376**  
PRELIMINARY STUDIES SUPPORTING THE DEVELOPMENT OF AN EVOLVED GAS ANALYZER FOR ARTEMIS MISSIONS  
*Period Obligations*  
06/12/1992-01/02/1994 FY93: \$0 TOTAL: \$100,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J L JORDAN JSC/T SULLIVAN 47-Materials Engr

**NAG 9-697 Lamar University 7384**  
TECHNOLOGY FOR DEVELOPMENT OF CONTROLLED ECOLOGICAL LIFE SUPPORT SYSTEM  
*Period Obligations*  
07/08/1993-09/01/1994 FY93: \$60,000 TOTAL: \$60,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
K LI JSC/D M HOY 54-Env Biology

**NAG 9-620 Lamar University 7377**  
ADVANCED CLOSED LIFE SUPPORT SYSTEM TECH  
*Period Obligations*  
06/15/1992-01/31/1994 FY93: \$0 TOTAL: \$150,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
W E SIMON JSC/M HOY 46-Mech Engr

**NAG 9-698 Lamar University 7385**  
EFFECTS OF FABRICATION PARAMETERS ON DAMAGE TOLERANCE IN FILAMENT WOUND GRAPHITE/PRESSURE VESSELS  
*Period Obligations*  
07/15/1993-09/01/1994 FY93: \$60,000 TOTAL: \$60,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
V NGUYEN JSC/G ECORD 47-Materials Engr

**NAG 9-626 Lamar University 7378**  
ALTERNATE POWER SOURCE FOR SPACE SHUTTLE ORBITER HYDRAULIC SYSTEM  
*Period Obligations*  
07/10/1992-01/15/1993 FY93: \$0 TOTAL: \$19,386  
*Prin. Invest. NASA Tech. Officer CASE Category*  
W E SIMON JSC/S FISHER 45-Elec Engr

**NAG 9-699 Lamar University 7386**  
VOLATILES RELEASED FROM LUNAR BRECCIAS  
*Period Obligations*  
07/15/1993-07/01/1994 FY93: \$60,000 TOTAL: \$60,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J JORDAN JSC/T A SULLIVAN 19-Phys Sci, NEC

**NAG 9-639 Lamar University 7379**  
DEVELOPMENT OF A HAND HELD ASTRONAUT  
*Period Obligations*  
09/09/1992-09/01/1994 FY93: \$0 TOTAL: \$40,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
V D NGUYEN JSC/L MONFORD 46-Mech Engr

**NAG 3-1500 Prairie View A&M University 7387**  
COMP ANALY OF VISCOUS FLOW THRU NOZZLE BY USING BO TH THE K-E TURB MODEL AND THE PD THOMAS TURB MODEL  
*Period Obligations*  
06/14/1993-10/25/1993 FY93: \$40,000 TOTAL: \$40,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
I CHANG LERC/E T MELEASON 41-Aero Engr  
.....D W LAM

**NAG 9-640 Lamar University 7380**  
REGENERATIVE LIFE SUPPORT SYSTEMS TECH DEVELOPMENT  
*Period Obligations*  
09/09/1992-03/01/1994 FY93: \$0 TOTAL: \$35,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
W E SIMON JSC/M HOY 46-Mech Engr

**NAG 5-2317 Prairie View A&M University 7388**  
THE PLASMA CONFIGURATION OF NEPTUNE'S MAGNETOSPHERE  
*Period Obligations*  
07/28/1993-08/14/1994 FY93: \$110,000 TOTAL: \$110,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
T S HUANG GSFC/R E HARTLE 19-Phys Sci, NEC

**NAG 9-641 Lamar University 7381**  
COLD TRAPPING OF GASES AT PLANETARY AND INTERPLANETARY TEMPERATURES  
*Period Obligations*  
09/09/1992-09/15/1993 FY93: \$0 TOTAL: \$25,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J L JORDAN JSC/T SULLIVAN 32-Geological Sci

**NAG 9-310 Prairie View A&M University 7389**  
FLOW BOILING/COLD PLATE COOLANT DESIGN  
*Period Obligations*  
09/01/1988-05/01/1992 FY93: \$165 TOTAL: \$289,835  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R D BOYD JSC/J P THORNBORROW 13-Physics

**NASA'S UNIVERSITY PROGRAM  
TEXAS (Continued)**

**NAG 9-318** **Prairie View A&M University** **7390**  
MICROWAVE IMAGING/ROBOT VISION  
*Period* *Obligations*  
09/01/1988-09/01/1993 FY93: \$0 TOTAL: \$289,349  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
C L TOLLIVER JSC/G D ARNDT 45-Elec Engr

**NAG 9-332** **Prairie View A&M University** **7391**  
SUSCEPTIBILITY OF MOS DEVICE TO ALPHA  
*Period* *Obligations*  
01/03/1989-08/31/1993 FY93: \$0 TOTAL: \$232,169  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
F C WANG JSC/C HERMAN 19-Phys Sci, NEC

**NAG 9-499** **Prairie View A&M University** **7392**  
RESEARCH SYSTEM TO DEPOSIT AMORPHOUS SILICON BY PL ASMA  
ENHANCED CHEMICAL VAPOR DEPOSITION  
*Period* *Obligations*  
09/01/1991-03/31/1993 FY93: \$0 TOTAL: \$65,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
K WALTER JSC/E EMANUEL 43-Chem Engr

**NAG 9-500** **Prairie View A&M University** **7393**  
RESEARCH SUPPORT THEORY OF RELIABILITY AND RADIATION  
TOLERANCE OF VLSI  
*Period* *Obligations*  
08/30/1991-12/31/1992 FY93: \$0 TOTAL: \$65,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
A KUMAR JSC/E EMANUEL 19-Phys Sci, NEC

**NAG 9-631** **Prairie View A&M University** **7394**  
FLOW BOILING ENHANCEMENT FOR THERMAL MNGT SYSTEMS  
*Period* *Obligations*  
09/01/1992-09/01/1993 FY93: \$0 TOTAL: \$215,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R D BOYD JSC/J P THORNBORROW 13-Physics

**NAG 9-659** **Prairie View A&M University** **7395**  
LABORATORY FOR RADIATION STUDIES  
*Period* *Obligations*  
01/15/1993-10/15/1993 FY93: \$888,215 TOTAL: \$888,215  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
T N FOGARTY JSC/M DIOQU 49-Engr, NEC

**NAG 9-667** **Prairie View A&M University** **7396**  
LUNAR OUTPOST CONSTRUCTION/RADIATION PROTECTION USING  
CO-PRODUCT OF A LUNAR OXYGEN PLANT  
*Period* *Obligations*  
03/03/1993-12/01/1993 FY93: \$20,000 TOTAL: \$20,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R RADHA JSC/K E HENDERSON 44-Civil Engr  
...../D S MCKAY

**NAG 1-1433** **Rice University** **7397**  
USE OF ARTIFICIAL NEURAL NETWORKS IN A REAL-TIME  
EXPERIMENTAL AERODYNAMIC DATA ANALYSIS SYSTEM  
*Period* *Obligations*  
05/05/1992-05/04/1994 FY93: \$0 TOTAL: \$30,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
A J MEADE LARC/M B TRACY 41-Aero Engr

**NAG 2-566** **Rice University** **7398**  
DATA REDUCTION AND ANALYSIS OF PIONEER-VENUS ORBITAL  
ION MASS SPECTROMETER  
*Period* *Obligations*  
02/27/1989-03/31/1994 FY93: \$200,000 TOTAL: \$1,170,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
P A CLOUTIER ARC/L E LASHER 11-Astronomy  
...../R O FIMMEL

**NAG 5-262** **Rice University** **7399**  
HIGH DISPERSION ULTRAVIOLET SPECTRA-ABUNDANCES OF  
CARBON SILICON AND MAGNESIUM IN SELECTED GLOCTU REGI  
*Period* *Obligations*  
08/01/1982-09/30/1993 FY93: \$18,305 TOTAL: \$346,764  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R J DUFOUR GSFC/D WEST 11-Astronomy  
M MITRA  
N R WALBORN

**NAG 5-775** **Rice University** **7400**  
DYNAMICS EXPLORER DATA ANALYSIS  
*Period* *Obligations*  
05/15/1986-12/31/1992 FY93: \$0 TOTAL: \$243,396  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
P REIFF GSFC/G D BULLOCK 19-Phys Sci, NEC  
...../R A HOFFMAN

**NAG 5-1195** **Rice University** **7401**  
STUDY OF THE SOLAR WIND INTERACTIVE WITH MARS  
*Period* *Obligations*  
08/01/1989-12/31/1992 FY93: \$0 TOTAL: \$24,958  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
P A CLOUTIER GSFC/M H ACUNA 13-Physics

**NAG 5-1467** **Rice University** **7402**  
CNO ABUNDANCE ENRICHMENTS IN PLANETARY NEBULAE  
*Period* *Obligations*  
09/20/1990-10/14/1993 FY93: \$3,000 TOTAL: \$13,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R A DUFOUR GSFC/D WEST 11-Astronomy

**NAG 5-1489** **Rice University** **7403**  
THREE DIMENSIONAL STRUCTURE OF THE EARTH'S ELECTRO  
MAGNETIC FIELD  
*Period* *Obligations*  
12/10/1990-07/14/1994 FY93: \$130,000 TOTAL: \$625,876  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
T W HILL GSFC/T J BIRMINGHAM 13-Physics

**NAG 5-1515** **Rice University** **7404**  
MODELING BATSE GAMMA RAY BURST CONTINUUM SPECTRA  
*Period* *Obligations*  
04/02/1991-01/14/1994 FY93: \$30,000 TOTAL: \$120,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
E P LIANG GSFC/J P NORRIS 11-Astronomy  
...../D A KNIFFEN



**NASA'S UNIVERSITY PROGRAM  
TEXAS (Continued)**

**NAG 5-1547** **Rice University** **7405**  
GAMMA RAYS FROM BLACK HOLES: COMPARISON OF GRO OBS  
ERVATIONS WITH THEORY  
*Period* *Obligations*  
04/15/1991-10/14/1993 FY93: \$6,000 TOTAL: \$60,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
E P LIANG GSFC/J P NORRIS 11-Astronomy  
.....D A KNIFFEN

**NAG 5-1626** **Rice University** **7406**  
HUBBLE SPACE TELESCOPE RESEARCH  
*Period* *Obligations*  
06/07/1991-10/31/1993 FY93: \$278,506 TOTAL: \$648,506  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
C R O'DELL GSFC/S SOBIESKI 11-Astronomy

**NAG 5-2045** **Rice University** **7407**  
SEARCH FOR PERIODICITIES AND LIGHT ECHOES IN BATSE  
GAMMA-RAY BURST DATA  
*Period* *Obligations*  
07/17/1992-01/14/1994 FY93: \$0 TOTAL: \$21,628  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
E P LIANG GSFC/J P NORRIS 11-Astronomy  
.....N WHITE

**NAG 5-2215** **Rice University** **7408**  
PEACE INVESTIGATION FOR CLUSTER MISSION  
*Period* *Obligations*  
02/17/1993-02/28/1994 FY93: \$9,995 TOTAL: \$9,995  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
P H REIFF GSFC/M L GOLDSTEIN 13-Physics

**NAG 8-146** **Rice University** **7409**  
PROJECT JOVE  
*Period* *Obligations*  
03/14/1990-08/02/1993 FY93: \$12,147 TOTAL: \$53,295  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J W FREEMAN MSFC/C R CHAPPELL 11-Astronomy  
.....N F SIX

**NAG 8-187** **Rice University** **7410**  
AENBRAKING/AEROCAPTURE GUIDANCE TRAJECTORIES FOR THE  
SPACE EXPLORATION INITIATIVE  
*Period* *Obligations*  
05/20/1991-05/19/1992 FY93: \$0 TOTAL: \$120,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
A MIELE MSFC/J M HANSON 42-Astro Engr  
.....G A DUKEMAN

**NAG 9-443** **Rice University** **7411**  
TESTBED FOR REMOTE TELEROBOTICS SYSTEMS  
*Period* *Obligations*  
06/01/1990-05/31/1992 FY93: \$66 TOTAL: \$59,731  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J B CHEATHAM JSC/T CLEGHORN 46-Mech Engr

**NAG 9-447** **Rice University** **7412**  
DETERIORATION OF LESS COMMON METALLIC SYSTEMS  
*Period* *Obligations*  
06/06/1990-02/01/1993 FY93: \$0 TOTAL: \$164,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
F R BROTZEN JSC/W L CASTNER 47-Materials Engr  
R B MCCLELLAN

**NAG 9-457** **Rice University** **7413**  
STUDY OF HYPERVELOCITY IMPACTS ON FIBER REINFORCED  
PLATES, ANALYSIS AND EXPERIMENTS  
*Period* *Obligations*  
07/16/1990-06/01/1994 FY93: \$25,000 TOTAL: \$97,204  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
Y C ANGEL JSC/E L CHRISTIANSEN 47-Materials Engr

**NAG 9-461** **Rice University** **7414**  
TELEROBOTICS LABORATORY NETWORK DEVELOPMENT  
*Period* *Obligations*  
08/29/1990-02/01/1994 FY93: \$0 TOTAL: \$719,330  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
D H JOHNSON JSC/L QUIOCHO 46-Mech Engr

**NAG 9-510** **Rice University** **7415**  
MOBILE ROBOT SYSTEM FOR DEVELOPING SPACE ROBOTIC  
SYSTEM  
*Period* *Obligations*  
04/15/1991-05/01/1993 FY93: \$0 TOTAL: \$56,040  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J B CHEATHAM JSC/J T CHLADEK 46-Mech Engr

**NAG 9-513** **Rice University** **7416**  
APPROACH FOR ESTIMATING SHUTTLE RANDOM (HIGH FRE-  
QUENCY) LOADS AND COMBINING WITH DETERMINISTIC LOADS  
*Period* *Obligations*  
04/25/1991-05/01/1992 FY93: \$0 TOTAL: \$58,053  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
P D SPANOS JSC/D A HAMILTON 46-Mech Engr

**NAG 9-601** **Rice University** **7417**  
IMPROVEMENTS TO TELRIP TELEROBOTICS DEVELOPMENT  
ENVIRONMENT  
*Period* *Obligations*  
05/01/1992-10/01/1993 FY93: \$0 TOTAL: \$25,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
D H JOHNSON JSC/S ASKEW 49-Engr, NEC

**NAG 9-628** **Rice University** **7418**  
FULLERENE REINFORCED ALUMINUM ALLOYS AND STAINLESS S  
TEEL FOR EMU PLSS  
*Period* *Obligations*  
07/17/1992-09/01/1994 FY93: \$48,131 TOTAL: \$82,153  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
E V BARRERA JSC/C H LIN 46-Mech Engr  
D CALLAHAN

**NAG 9-681** **Rice University** **7419**  
ANALYSIS OF WAVELET TECHNOLOGY FOR NASA APPLICA- TIONS  
*Period* *Obligations*  
04/08/1993-04/01/1994 FY93: \$65,182 TOTAL: \$65,182  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R O WELLS JSC/K KIRSHEN 21-Mathematics

**NASA'S UNIVERSITY PROGRAM**  
**TEXAS (Continued)**

**NAGW 1655** **Rice University** **7420**  
MAGNETOSPHERIC AND AURORAL PROCESSES  
*Period* *Obligations*  
02/24/1989-02/28/1994 FY93: \$132,300 TOTAL: \$583,300  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
P H REIFF HQ/M M MELLOTT 13-Physics  
...../T W PERRY

**NAGW 2117** **Rice University** **7421**  
NAGW-2117/RICE UNIV/PLASMA ANISOTROPIES IN QUANTITATIVE  
MAGNETOSPHERIC MAGNETIC FIELD MODELS  
*Period* *Obligations*  
06/20/1990-03/31/1993 FY93: \$0 TOTAL: \$189,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
G H VOIGT HQ/M M MELLOTT 13-Physics  
...../T PERRY

**NAGW 2256** **Rice University** **7422**  
IMPROVING THE SENSITIVITY OF NUCLEAR ASTRONOMY TELESCOPES  
*Period* *Obligations*  
11/16/1990-09/30/1994 FY93: \$100,000 TOTAL: \$347,963  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R C HAYMES HQ/L KALUZIENSKI 11-Astronomy

**NAGW 2683** **Rice University** **7423**  
NAGW-2683/RICE UNIV/NUMERICAL SIMULATION OF TORUS-DRIVEN PLASMA TRANSPORT IN THE JOVIAN MAGNETOSPHERE  
*Period* *Obligations*  
08/12/1991-06/30/1994 FY93: \$68,000 TOTAL: \$201,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R A WOLF HQ/E C WHIPPLE 13-Physics  
...../J D BOHLIN

**NAGW 2824** **Rice University** **7424**  
NUMERICAL CODES FOR TWO AND THREE DIMENSIONAL MAGNETOSPHERIC MHD EQUILIBRIUM MODELS  
*Period* *Obligations*  
01/06/1992-03/31/1994 FY93: \$68,000 TOTAL: \$136,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
G H VOIGT HQ/E C WHIPPLE 13-Physics  
...../J D BOHLIN

**NAGW 2826** **Rice University** **7425**  
COUPLING OF THE LOW-LATITUDE BOUNDARY LAYER TO THE MAGNETOSPHERIC INTERIOR  
*Period* *Obligations*  
01/15/1992-03/31/1994 FY93: \$40,000 TOTAL: \$80,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R A WOLF HQ/E C WHIPPLE 13-Physics  
...../J D BOHLIN

**NAGW 2845** **Rice University** **7426**  
NON CONTACT THERMAL, PHYSICAL PROPERTY MEASUREMENTS OF MULTI COMPONENTS, MULTIPHASE SYSTEMS AT RICE  
*Period* *Obligations*  
01/24/1992-11/30/1993 FY93: \$105,000 TOTAL: \$210,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R H HAUGE HQ/B M CARPENTER 13-Physics  
J L MARBRAVE

**NAGW 2893** **Rice University** **7427**  
THE GLOBAL CONFIGURATION OF NEPTUNE'S MAGNETOSPHERE  
*Period* *Obligations*  
02/19/1992-03/31/1994 FY93: \$75,763 TOTAL: \$147,752  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
H VOIGT HQ/W L QUAIDE 19-Phys Sci, NEC

**NAGW 3139** **Rice University** **7428**  
NAGW-3139/RICE UNIV/CALMODULIN-RELATED PROTEINS IN MECHANOSTIMULATED PLANTS  
*Period* *Obligations*  
07/24/1992-06/30/1994 FY93: \$50,000 TOTAL: \$100,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J BRAAM HQ/T W HALSTEAD 51-Biological Sci

**NAGW 3248** **Rice University** **7429**  
ASTRONOMY ARCHAEOLOGY ADVENTURES  
*Period* *Obligations*  
10/26/1992-07/31/1993 FY93: \$5,000 TOTAL: \$5,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R C HAYMES HQ/L S LAPIANA 11-Astronomy  
...../G P NEWTON

**NAGW 3504** **Rice University** **7430**  
STUDY OF DYNAMICS AND MORPHOLOGY OF SONOSPHERIC STRUCTURES OF VENUS  
*Period* *Obligations*  
04/09/1993-09/30/1993 FY93: \$15,000 TOTAL: \$15,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
P A CLOUTIER HQ/J T BERGSTRALH 31-Atmos Sci

**NAGW 3536** **Rice University** **7431**  
EROSPHERES AND ATMOSPHERIC LOSS OF THE TERRESTRIAL PLANETS  
*Period* *Obligations*  
04/22/1993-04/30/1994 FY93: \$30,000 TOTAL: \$30,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J W CHAMBERLAIN HQ/H C BRINTON 19-Phys Sci, NEC

**NCCW 27** **Rice University** **7432**  
MADIC/NASA INFRASTRUCTURE PROJECT  
*Period* *Obligations*  
04/09/1991-02/28/1994 FY93: \$750,000 TOTAL: \$750,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J E DENNIS HQ/P E HUNTER 41-Aero Engr  
...../M D SALAS

**NGT 00-030-072** **Rice University** **7433**  
NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period* *Obligations*  
09/06/1991-08/31/1993 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
S CHU HQ/D M BUTLER 33-Oceanography  
T S LEDLEY ...../G S WILSON

**NGT 00-030-074** **Rice University** **7434**  
NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period* *Obligations*  
09/06/1991-08/31/1994 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
G A HADDAD HQ/D M BUTLER 33-Oceanography  
A W DROXLER ...../G S WILSON

**NASA'S UNIVERSITY PROGRAM  
TEXAS (Continued)**

**NGT 00-050-379** **Rice University** **7435**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
08/10/1988-01/31/1993 FY93: \$0 TOTAL: \$79,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R DE FIGUEIREDO HQ/F C OWENS 45-Elec Engr

**NGT 00-050-447** **Rice University** **7436**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
08/14/1989-08/31/1993 FY93: \$0 TOTAL: \$79,800  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D H JOHNSON HQ/F C OWENS 45-Elec Engr

**NGT 00-050-557** **Rice University** **7437**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
07/09/1990-06/30/1993 FY93: \$0 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
L V MCINTIRE HQ/F C OWENS 43-Chem Engr

**NGT 00-050-569** **Rice University** **7438**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
07/11/1990-06/26/1993 FY93: \$0 TOTAL: \$63,662  
*Prin. Invest. NASA Tech. Officer CASE Category*  
F C MICHEL HQ/F C OWENS 11-Astronomy

**NGT 00-050-572** **Rice University** **7439**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
07/09/1990-08/14/1992 FY93: \$0 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
W ZWAENEPOEL HQ/F C OWENS 22-Computer Science

**NGT 00-050-580** **Rice University** **7440**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
08/17/1991-05/14/1993 FY93: \$0 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
W ZWAENEPOEL HQ/F C OWENS 22-Computer Science

**NGT 00-050-698** **Rice University** **7441**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
06/07/1991-05/31/1994 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
A FEW HQ/F C OWENS 31-Atmos Sci

**NGT 00-050-735** **Rice University** **7442**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
05/13/1991-08/31/1992 FY93: \$0 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
S H DAVIS HQ/F C OWENS 43-Chem Engr

**NGT 00-050-746** **Rice University** **7443**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
08/12/1991-08/14/1994 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J BENNETT HQ/F C OWENS 22-Computer Science

**NGT 00-050-924** **Rice University** **7444**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
06/15/1992-06/30/1994 FY93: \$22,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
E P LIANG GSFC/G SOFFEN 13-Physics

**NGT 00-051-019** **Rice University** **7445**  
NGT-51019/GRADUATE STUDENT RESEARCHERS PROGRAM/RIC E UNIVERSITY  
*Period Obligations*  
05/04/1993-06/30/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
G H VOIGT GSFC/G SOFFEN 13-Physics

**NGT 00-051-050** **Rice University** **7446**  
GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
06/02/1993-06/30/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
B AAZHANG JSC/S GOLSDSTEIN 46-Mech Engr

**NGT 00-051-079** **Rice University** **7447**  
GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
06/11/1993-06/30/1994 FY93: \$19,724 TOTAL: \$19,724  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R C HAYMES HQ/D HOLLAND 13-Physics

**NGT 00-070-251** **Rice University** **7448**  
NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED MINORITY FOCUS PROGRAM  
*Period Obligations*  
04/28/1992-06/30/1994 FY93: \$22,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
I D WALKER JSC/S GOLDSTEIN 49-Engr, NEC

**NGT 00-070-353** **Rice University** **7449**  
NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED MINORITY FOCUS PROGRAM  
*Period Obligations*  
09/02/1993-08/31/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
A MEADE HQ/D K RUSSELL 46-Mech Engr

**NGT 00-090-140** **Rice University** **7450**  
UNDERGRADUATE STUDENT RESEARCHERS PROGRAM (UMF)  
*Period Obligations*  
10/09/1992-08/14/1993 FY93: \$12,000 TOTAL: \$12,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R STABELL HQ/D K RUSSELL 99-Multi-Discip

**NASA'S UNIVERSITY PROGRAM**  
**TEXAS (Continued)**

**NGT 00-090-165**      **Rice University**      **7451**  
 UNDERGRADUATE STUDENT RESEARCHERS PROGRAM  
*Period*      *Obligations*  
 08/27/1993-08/14/1994      FY93: \$12,000      TOTAL: \$12,000  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
 R STABELL      HQ/D K RUSSELL      99-Multi-Discip

**NGT 00-090-219**      **Rice University**      **7452**  
 UNDERGRADUATE STUDENT RESEARCHERS (UMF) PROGRAM  
*Period*      *Obligations*  
 09/23/1993-08/14/1994      FY93: \$12,000      TOTAL: \$12,000  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
 R STABELL      HQ/D K RUSSELL      99-Multi-Discip

**NAGW 459**      **Southern Methodist University**      **7453**  
 PLANETARY INTERIOR MODELING AND TECTONIC IMPLICATIONS  
*Period*      *Obligations*  
 05/01/1983-12/31/1992      FY93: \$0      TOTAL: \$628,358  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
 R J PHILLIPS      HQ/J R UNDERWOOD      32-Geological Sci  
      ....J M BOYCE

**NAGW 2355**      **Southern Methodist University**      **7454**  
 MANAGEMENT OF THE LUNAR EXPLORATION SCIENCE WORKIN G GROUP  
*Period*      *Obligations*  
 03/04/1991-06/30/1992      FY93: \$0      TOTAL: \$46,001  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
 R J PHILLIPS      HQ/D MCCONNELL      32-Geological Sci

**NAGW 2915**      **Southern Methodist University**      **7455**  
 STRUCTURAL, KINEMATIC, AND STRAIN HISTORY ANALYSIS  
*Period*      *Obligations*  
 02/27/1992-02/28/1994      FY93: \$50,450      TOTAL: \$93,869  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
 V L HANSEN      HQ/J M BOYCE      32-Geological Sci

**NGT 00-050-536**      **Southern Methodist University**      **7456**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period*      *Obligations*  
 08/31/1989-08/21/1993      FY93: \$0      TOTAL: \$84,000  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
 J H DULA      JSC/S GOLDSTEIN      49-Engr, NEC

**NAG 1-631**      **Southwest Texas State University**      **7457**  
 TRIFLUOROMETHYL - SUBSTITUTED POLYIMIDINES  
*Period*      *Obligations*  
 01/14/1986-01/14/1994      FY93: \$29,919      TOTAL: \$357,096  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
 P E CASSIDY      LARC/A K ST CLAIR      12-Chemistry  
      ....D M STOKLEY

**NGT 00-070-271**      **Southwest Texas State University**      **7458**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED MINORITY FOCUS PROGRAM  
*Period*      *Obligations*  
 06/29/1992-06/30/1994      FY93: \$22,000      TOTAL: \$44,000  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
 P E CASSIDY      LARC/E J PRIOR      12-Chemistry

**NAGW 3028**      **Sul Ross State University**      **7459**  
 NAGW-3028/SUL ROSS STATE UNIV/CORRELATION OF ERUPT ION CONDITIONS AND COMPOSITIONS OF LUNAR LAVAS  
*Period*      *Obligations*  
 04/17/1992-02/28/1993      FY93: \$0      TOTAL: \$13,530  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
 J L STARK      HQ/J M BOYCE      32-Geological Sci

**NAG 9-682**      **Texas A&I University**      **7460**  
 MINORITY EDUCATION PROGRAM K-12 OUTREACH EFFORTS  
*Period*      *Obligations*  
 04/02/1993-04/15/1994      FY93: \$64,874      TOTAL: \$64,874  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
 J L KIMBALL      JSC/L M ARMENDARIZ      79-Soc Sci, NEC

**NGT 00-070-183**      **Texas A&I University**      **7461**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED MINORITY FOCUS PROGRAM  
*Period*      *Obligations*  
 05/23/1990-05/31/1992      FY93: \$0      TOTAL: \$44,000  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
 J S LINDER      HQ/C C OWENS      45-Elec Engr

**NAG 1-891**      **Texas A&M University**      **7462**  
 SHOCK-WAVE BOUNDARY-LAYER INTERACTION STUDIES FOR HYPERSONIC INLET  
*Period*      *Obligations*  
 06/15/1988-07/31/1992      FY93: \$0      TOTAL: \$217,998  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
 F K LU      LARC/J P WEIDNER      41-Aero Engr  
 D R WILSON      ....E A MACKLEY

**NAG 1-1003**      **Texas A&M University**      **7463**  
 NONEQUILIBRIUM RADIATION AND CHEMISTRY MODELS FOR AEROCAPTURE VEHICLE FLOWFIELDS  
*Period*      *Obligations*  
 06/27/1989-08/31/1993      FY93: \$0      TOTAL: \$209,909  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
 L A CARLSON      LARC/L C HARTUNG      41-Aero Engr

**NAG 1-1066**      **Texas A&M University**      **7464**  
 KNOWLEDGE-BASED PROCESSING FOR AIRCRAFT FLIGHT CONTROL - FDP  
*Period*      *Obligations*  
 10/23/1989-10/17/1993      FY93: \$0      TOTAL: \$97,133  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
 J H PAINTER      LARC/R M HUESCHEN      49-Engr, NEC  
      ....J M MCMANUS

**NAG 1-1273**      **Texas A&M University**      **7465**  
 FLOW FIELD MEASUREMENTS IN A DUCT WITH CONVEX AND CONCAVE CURVATURE FDP  
*Period*      *Obligations*  
 04/30/1991-11/30/1993      FY93: \$15,000      TOTAL: \$37,766  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
 A AHMED      LARC/S K ROBINSON      41-Aero Engr

**NASA'S UNIVERSITY PROGRAM**  
**TEXAS (Continued)**

**NAG 1-1297 Texas A&M University 7466**  
 INVESTIGATION OF POLYMERIC MATERIALS EXPOSED TO THE LOW  
 EARTH ORBIT ENVIRONMENT FDP  
*Period Obligations*  
 06/13/1991-06/14/1993 FY93: \$0 TOTAL: \$65,001  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 T STRGANAC LARC/J L JONES 47-Materials Engr  
 ....W H KINARD

**NAG 1-1324 Texas A&M University 7467**  
 FAILURE ANALYSIS OF 2D AND 3D WOVEN COMPOSITES  
 INCREMENTAL FUNDING THROUGH DECEMBER 31, 1991  
*Period Obligations*  
 08/30/1991-09/30/1993 FY93: \$52,495 TOTAL: \$106,599  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J D WHITCOMB LARC/J R REEDER 46-Mech Engr  
 ....C C POE

**NAG 1-1326 Texas A&M University 7468**  
 NONRECURSIVE ORDER N PRECONDITIONED CONJUGATE  
 GRADIENT/RANGE SPACE FORMULATION OF MULTIBODY  
*Period Obligations*  
 08/29/1991-07/31/1993 FY93: \$36,994 TOTAL: \$120,059  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A KURDILA LARC/W K BELVIN 49-Engr, NEC  
 J JUNKINS

**NAG 1-1407 Texas A&M University 7469**  
 ANALYSIS OF STATIC CONTACT IN LAMINATED COMPOSITE PLATES  
 USING DAMAGE MECHANICS  
*Period Obligations*  
 03/12/1992-09/30/1993 FY93: \$70,671 TOTAL: \$120,671  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D H ALLEN LARC/C E HARRIS 46-Mech Engr  
 ....W C JACKSON

**NAG 1-1522 Texas A&M University 7470**  
 A TWO ELEMENT LAMINAR FLOW AIRFOIL OPTIMIZED FOR  
 CRUISE  
*Period Obligations*  
 06/18/1993-12/31/1993 FY93: \$9,989 TOTAL: \$9,989  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 O W MICKS LARC/M F CARD 41-Aero Engr  
 K D KORKAN ....R L YANG

**NAG 3-181 Texas A&M University 7471**  
 ON ROTOR DYNAMIC RESPONSE AND STABILITY  
*Period Obligations*  
 04/27/1981-02/28/1994 FY93: \$145,000 TOTAL: \$2,230,352  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D W CHILDS LERC/R C HENDRICKS 46-Mech Engr  
 C C NELSON  
 G MORRISON

**NAG 3-763 Texas A&M University 7472**  
 ACTIVE CONTROL OF TRANSIENT ROTOR VIBRATIONS  
*Period Obligations*  
 12/11/1986-03/29/1994 FY93: \$90,000 TOTAL: \$401,895  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A B PALAZZOLO LERC/A F KASCAK 46-Mech Engr

**NAG 3-891 Texas A&M University 7473**  
 CYOGENIC DAMPERS VERIFICATION  
*Period Obligations*  
 02/29/1988-12/14/1993 FY93: \$50,000 TOTAL: \$463,004  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A B PALAZZOLO LERC/A F KASCAK 46-Mech Engr

**NAG 3-1144 Texas A&M University 7474**  
 DEV OF AN ADV COMPUTER CODE FOR SIMULATION OF DYN  
 BEHAVIOR OF HIGH PRESSURE GAS TURBINE ENGINES  
*Period Obligations*  
 02/21/1990-02/08/1994 FY93: \$35,000 TOTAL: \$191,184  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 T SCHOBIRI LERC/D E PAXSON 41-Aero Engr

**NAG 3-1235 Texas A&M University 7475**  
 INVESTIGATION AND FEASIBILITY ASSESSMENT OF TOPAZ-I I  
 DERIVATIVES FOR SPACE POWER APPLICATIONS  
*Period Obligations*  
 03/28/1991-05/31/1993 FY93: \$13,400 TOTAL: \$113,373  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A G PARLES LERC/S M STEVENSON 49-Engr, NEC  
 K L PEDDICORD

**NAG 3-1255 Texas A&M University 7476**  
 METHODS TO ATTAIN HI ENERGY EFFICIENCIES AND LONG LI  
 FETIMES IN POLYMER ACID FUEL CELLS  
*Period Obligations*  
 02/27/1991-03/08/1993 FY93: \$0 TOTAL: \$150,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S SRINIVASAN LERC/P R PROKOPIUS 43-Chem Engr  
 A J APPLEBY

**NAG 3-1270 Texas A&M University 7477**  
 ANALYSIS OF NEW COMPOSITES ARCHITECTURES  
*Period Obligations*  
 04/16/1991-06/30/1994 FY93: \$34,999 TOTAL: \$107,746  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J D WHITCOMB LERC/C C CHAMIS 41-Aero Engr  
 ....P L MURTHY

**NAG 3-1326 Texas A&M University 7478**  
 INVESTIGATION OF NATURAL AND MAN-MADE RADIATION EFFE  
 CTS ON CREWS ON LONG-DURATION SPACE MISSIONS  
*Period Obligations*  
 02/28/1992-09/30/1993 FY93: \$0 TOTAL: \$100,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 W E BOLCH LERC/S M STEVENSON 49-Engr, NEC  
 A G PARLOS

**NAG 3-1353 Texas A&M University 7479**  
 MODULATION, CODING AND SYNCHRONIZATION FOR THROUGHPU  
 T-EFFICIENT FREE-SPACE OPTICAL SYSTEMS  
*Period Obligations*  
 06/03/1992-05/31/1993 FY93: \$0 TOTAL: \$45,069  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 C N GEORGHIADES LERC/J M BUDINGER 45-Elec Engr  
 ....S D KERSLAKE

**NASA'S UNIVERSITY PROGRAM**  
**TEXAS (Continued)**

**NAG 3-1368 Texas A&M University 7480**  
 CONSTRUCTION AND TESTING OF A SPACE READY RECTENNA  
*Period Obligations*  
 09/17/1992-03/07/1993 FY93: \$215 TOTAL: \$29,785  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 F LITTLE LERC/J M BOZEK 45-Elec Engr  
 A BROWN

**NAG 3-1434 Texas A&M University 7481**  
 THERMOHYDRODYNAMIC ANALYSIS OF CRYOGENIC LIQUID TURBULENT FLOW FLUID FILM BEARINGS  
*Period Obligations*  
 01/11/1993-12/31/1993 FY93: \$99,876 TOTAL: \$99,876  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 L SAN ANDRES LERC/J F WALKER 46-Mech Engr

**NAG 3-1512 Texas A&M University 7482**  
 COMBINED NUMERICAL/ANALYTICAL PERTURBATION SOLUTIONS OF THE NAVIER-STOKES EQU W/APPL TO AERODYN AND G  
*Period Obligations*  
 09/23/1993-09/23/1994 FY93: \$11,000 TOTAL: \$11,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J A CATON LERC/J K LYTIE 46-Mech Engr

**NAG 3-1542 Texas A&M University 7483**  
 ACTIVE CONTROL OF VIBRATION SUBTOPIC - HIGH TEMPERATURE MAGNETIC THRUST BEARING DEVELOPMENT  
*Period Obligations*  
 09/29/1993-03/31/1994 FY93: \$12,490 TOTAL: \$12,490  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A B PALAZZOLO LERC/A F KASCAK 46-Mech Engr

**NAG 5-655 Texas A&M University 7484**  
 BALLOON MATERIALS, SCIENCE AND ENGINEERING  
*Period Obligations*  
 03/01/1989-10/31/1993 FY93: \$114,754 TOTAL: \$394,217  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J NOEL GSFC/H C NEEDLEMAN 19-Phys Sci, NEC  
 ....L J EARLY

**NAG 5-673 Texas A&M University 7485**  
 INVESTIGATION OF BALLOON MATERIAL PROPERTIES EXPOSED TO THE LOW EARTH ORBIT ENVIRONMENT  
*Period Obligations*  
 10/19/1990-09/30/1993 FY93: \$0 TOTAL: \$118,889  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 T W STRGANAC GSFC/I S SMITH 47-Materials Engr  
 ....H C NEEDLEMAN

**NAG 5-869 Texas A&M University 7486**  
 STATISTICAL RESEARCH FOR PRECIPITATION FROM SPACE  
*Period Obligations*  
 02/01/1987-04/30/1994 FY93: \$75,000 TOTAL: \$675,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 G R NORTH GSFC/T L BELL 31-Atmos Sci

**NAG 5-1423 Texas A&M University 7487**  
 PARTICIPATION IN TRMM-1 AIRCRAFT EXPERIMENT  
*Period Obligations*  
 08/02/1990-05/14/1994 FY93: \$59,816 TOTAL: \$182,417  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 T T WILHEIT GSFC/J R WANG 31-Atmos Sci  
 ....J C SHIUE

**NAG 5-1568 Texas A&M University 7488**  
 RADIOMETER TEAM LEADER  
*Period Obligations*  
 05/31/1991-05/31/1994 FY93: \$90,000 TOTAL: \$264,115  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 T T WILHEIT GSFC/J WEINMAN 31-Atmos Sci

**NAG 5-1569 Texas A&M University 7489**  
 VALIDATION AND TRANSFERABILITY OF TROPICAL RAIN ESTIMATION METHODS  
*Period Obligations*  
 05/13/1991-05/31/1994 FY93: \$125,000 TOTAL: \$364,205  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 E ZIPSER GSFC/O THIELE 31-Atmos Sci

**NAG 5-1590 Texas A&M University 7490**  
 STATISTICAL STUDIES FOR THE TROPICAL RAINFALL MEASURING MISSION  
*Period Obligations*  
 06/24/1991-06/30/1994 FY93: \$70,000 TOTAL: \$276,723  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 G R NORTH GSFC/T BELL 31-Atmos Sci

**NAG 5-2033 Texas A&M University 7491**  
 INTENSIVE BOUNDARY LAYER WATER CYCLE STUDY IN THE WESTERN EQUATORIAL PACIFIC  
*Period Obligations*  
 07/17/1992-08/31/1993 FY93: \$0 TOTAL: \$30,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 E ZIPSER GSFC/O W THIELE 31-Atmos Sci

**NAG 5-2089 Texas A&M University 7492**  
 TRMM RELATED OBSERVATIONS OF TROPICAL RAINFALL STRUCTURE IN TOGA/COARE  
*Period Obligations*  
 09/02/1992-07/14/1994 FY93: \$44,989 TOTAL: \$44,989  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 T WILHEIT GSFC/O W THIELE 31-Atmos Sci

**NAG 5-2221 Texas A&M University 7493**  
 COMET COMMUNICATIONS EXPERIMENT PROGRAM  
*Period Obligations*  
 02/22/1993-02/28/1994 FY93: \$39,188 TOTAL: \$39,188  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 F LITTLE GSFC/J CHITWOOD 49-Engr, NEC  
 ....K L PERKO

**NAG 8-294 Texas A&M University 7494**  
 DESIGN REVIEW AND ANALYSIS FOR SEAL TESTING RIG  
*Period Obligations*  
 06/23/1993-06/22/1994 FY93: \$62,507 TOTAL: \$62,507  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D CHILDS MSFC/H G GIBSON 46-Mech Engr  
 ....R L THOM

**NASA'S UNIVERSITY PROGRAM**  
**TEXAS (Continued)**

**NAG 8-845 Texas A&M University 7495**  
 SATELLITE-OBSERVED SYNOPTIC-SCALE MOISTURE STRUCTURE OVER THE PACIFIC  
*Period* *Obligations*  
 09/04/1990-09/30/1993 FY93: \$0 TOTAL: \$225,002  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 J P MCGUIRK MSFC/J KAUFMAN 31-Atmos Sci

**NAG 8-870 Texas A&M University 7496**  
 WETNET  
*Period* *Obligations*  
 03/26/1991-02/25/1992 FY93: \$2 TOTAL: \$47,073  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 E J ZIPSER MSFC/S GOODMAN 31-Atmos Sci  
 J P MCGUIRK

**NAG 8-912 Texas A&M University 7497**  
 WET NET  
*Period* *Obligations*  
 05/27/1992-05/31/1994 FY93: \$87,000 TOTAL: \$190,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 E J ZIPSER MSFC/S GOODMAN 31-Atmos Sci  
 J P MCGUIRK

**NAG 9-331 Texas A&M University 7498**  
 SPACE RADIATION/MATERIALS/DEVICES  
*Period* *Obligations*  
 01/15/1989-12/30/1993 FY93: \$95,000 TOTAL: \$384,382  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 J S LINDER JSC/C HERMAN 31-Atmos Sci

**NAG 9-395 Texas A&M University 7499**  
 THE FRACTURE CRITERIA OF BERYLLIUM SHEET AND TUBE  
*Period* *Obligations*  
 09/01/1989-04/01/1993 FY93: \$0 TOTAL: \$73,158  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 J HERRERA JSC/W L CASTNER 47-Materials Engr

**NAG 9-431 Texas A&M University 7500**  
 WATER POST TREATMENT  
*Period* *Obligations*  
 05/21/1990-05/01/1993 FY93: \$0 TOTAL: \$130,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 M EHSANI JSC/J D BURKE 45-Elec Engr

**NAG 9-450 Texas A&M University 7501**  
 EVALUATION OF SHUTTLE REMOTE MANIPULATOR SYSTEM  
*Period* *Obligations*  
 07/01/1990-07/01/1992 FY93: \$0 TOTAL: \$48,066  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 L J EVERETT JSC/L G MONFORD 46-Mech Engr  
 M J RABINS  
 R REDFIELD

**NAG 9-491 Texas A&M University 7502**  
 ROBUST ADAPTIVE CONTROL TECHNOLOGY FOR ADVANCED SPACED SPACE SYSTEMS  
*Period* *Obligations*  
 01/01/1991-01/01/1994 FY93: \$0 TOTAL: \$149,999  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 A G CARLOS JSC/J W SUNKEL 49-Engr, NEC

**NAG 9-493 Texas A&M University 7503**  
 ZERO-G TWO PHASE FLOW  
*Period* *Obligations*  
 03/22/1991-06/01/1993 FY93: \$0 TOTAL: \$197,692  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 F B BEST JSC/K MILLER 13-Physics

**NAG 9-511 Texas A&M University 7504**  
 REWETTING OF HOT GROOVED SURFACES  
*Period* *Obligations*  
 04/26/1991-05/01/1993 FY93: \$0 TOTAL: \$59,322  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 G P PETERSON JSC/E K UNGER 46-Mech Engr

**NAG 9-514 Texas A&M University 7505**  
 MATHEMATICAL MODELING OF A THERMOVOLTAIC CELL  
*Period* *Obligations*  
 04/30/1991-04/30/1992 FY93: \$513 TOTAL: \$45,150  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 T V NGUYEN JSC/E C DARCY 43-Chem Engr  
 R E WHITE

**NAG 9-517 Texas A&M University 7506**  
 ADVANCES IN ELECTROCATALYSTS FOR WATER POST TREATMENT REACTORS FOR LONG DURATION SPACE MISSIONS  
*Period* *Obligations*  
 05/22/1991-06/01/1992 FY93: \$415 TOTAL: \$59,585  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 A J APPLEBY JSC/C E VEROSTKO 43-Chem Engr

**NAG 9-533 Texas A&M University 7507**  
 ENHANCE EFFICIENCIES AND POWER DENSITIES OF SOLID POLYMER ELECTROLYTE FUEL CELLS  
*Period* *Obligations*  
 06/24/1991-04/30/1992 FY93: \$388 TOTAL: \$44,612  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 S SRINIVASAN JSC/J E BURKE 47-Materials Engr

**NAG 9-541 Texas A&M University 7508**  
 FEASIBILITY OF WHEAT GROWTH TO MATURITY AT REDUCED GAS PRESSURES  
*Period* *Obligations*  
 07/26/1991-05/01/1993 FY93: \$0 TOTAL: \$39,681  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 E J RYKIEL JSC/D L HENNINGER 54-Env Biology

**NAG 9-549 Texas A&M University 7509**  
 VISIONLESS TRAC---NON-VIDEO TARGETING AND DISPLACEMENT ORIENTATION  
*Period* *Obligations*  
 09/11/1991-01/01/1992 FY93: \$0 TOTAL: \$33,600  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 L J EVERETT JSC/L G MONFORD 46-Mech Engr

**NAG 9-566 Texas A&M University 7510**  
 LONG RANGE TARGETING FOR SPACE BASED RENDEZVOUS  
*Period* *Obligations*  
 10/09/1991-04/01/1994 FY93: \$61,950 TOTAL: \$86,946  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 R C REDFIELD JSC/L G MUNFORD 46-Mech Engr  
 L J EVERETT

# NASA'S UNIVERSITY PROGRAM

## TEXAS (Continued)

**NAG 9-596 Texas A&M University 7511**  
 AC-IMPEDENCE SPECTROSCOPY AS NONDESTRUCTIVE HEALTH  
 INTERROGATION TOOL FOR LITHIUM-BCX CELLS  
*Period Obligations*  
 05/06/1992-05/01/1993 FY93: \$0 TOTAL: \$40,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R W FLUMERFELT JSC/E DARCY 43-Chem Engr  
 B N POPOV

**NAG 9-598 Texas A&M University 7512**  
 HIGH ENERGY EFFICIENCY AND HIGH POWER DENSITY PROT ON  
 EXCHANGE MEMBRANE FUEL CELLS  
*Period Obligations*  
 06/01/1992-06/01/1993 FY93: \$0 TOTAL: \$69,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A J APPLEBY JSC/D L BELANGER 45-Elec Engr  
 S R SRINIVASAN

**NAG 9-629 Texas A&M University 7513**  
 SELF CALIBRATING AUTOTRAC  
*Period Obligations*  
 08/20/1992-09/01/1994 FY93: \$0 TOTAL: \$24,917  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 L J EVERETT JSC/L MONFORD 46-Mech Engr

**NAG 9-642 Texas A&M University 7514**  
 PHOSPHORUS REACTIONS WITH LUNAR SIMULANT  
*Period Obligations*  
 09/16/1992-09/01/1993 FY93: \$12,000 TOTAL: \$12,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 L R HOZZNER JSC/- 54-Env Biology

**NAG 9-668 Texas A&M University 7515**  
 PEIZO ELECTRIC CRYSTALS AS VIBRATION CONTROL DEVIC ES  
 FOR FLEXIBLE SPACECRAFT STRUCTURES  
*Period Obligations*  
 03/02/1993-03/01/1994 FY93: \$58,969 TOTAL: \$58,969  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S MIDTURI JSC/D A HAMILTON 46-Mech Engr

**NAG 9-669 Texas A&M University 7516**  
 LUNAR OUTPOST CONSTRUCTION AND RADIATION USING CO  
 PRODUCT OF A LUNAR OYGEN PLANT  
*Period Obligations*  
 03/03/1993-12/01/1993 FY93: \$67,463 TOTAL: \$67,463  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 B D ETTER JSC/D HENNINGER 51-Biological Sci  
 R STAHL  
 M DRAW

**NAG 9-680 Texas A&M University 7517**  
 THE DEVELOPMENT OF NONEQUILIBRIUM HEAT TRANSFER  
 COMPUTATIONAL MODELFOR VEHICLE FLOWFIELD METHODS'  
*Period Obligations*  
 04/01/1993-06/01/1994 FY93: \$55,563 TOTAL: \$55,563  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 L A CARLSON JSC/C D SCOTT 41-Aero Engr

**NAGW 1194 Texas A&M University 7518**  
 CENTER FOR THE COMMERCIAL DEVE. OF SPACE POWER  
*Period Obligations*  
 09/30/1987-10/31/1993 FY93: \$1,400,000 TOTAL: \$7,943,300  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A D PATTON HQ/A M VILLAMIL 19-Phys Sci, NEC  
 B W NICKS ....V CEVENINI

**NAGW 1590 Texas A&M University 7519**  
 SINGLE CRYSTAL GROWTH OF HIGH-TC SUPERCONDUCTORS  
*Period Obligations*  
 01/05/1989-01/31/1992 FY93: \$0 TOTAL: \$297,135  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R K PANDEY HQ/J K ALEXANDER 47-Materials Engr  
 ....D A HOLLAND

**NAGW 1779 Texas A&M University 7520**  
 THE ELECTROCHEMICAL INCINERATION OF HUMAN WASTES IN  
 CONFINED  
*Period Obligations*  
 06/22/1989-12/31/1992 FY93: \$0 TOTAL: \$279,685  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J O BROCKIS HQ/P L EVANICH 43-Chem Engr  
 ....A F BEHREND

**NAGW 1836 Texas A&M University 7521**  
 STATISTICAL RESEARCH FOR PRECIPITATION FROM SPACE  
*Period Obligations*  
 09/06/1989-09/30/1992 FY93: \$0 TOTAL: \$104,850  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R H STEWART HQ/G S LAGERLOEF 33-Oceanography  
 ....W S WILSON

**NAGW 1979 Texas A&M University 7522**  
 STUDIES OF GEOSTROPHIC TURBULENE USING GEOSAT DATA  
*Period Obligations*  
 05/22/1990-12/31/1993 FY93: \$0 TOTAL: \$195,677  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R H STEWART HQ/G S LAGERLOEF 33-Oceanography  
 ....W S WILSON

**NAGW 2427 Texas A&M University 7523**  
 HYDROLOGIC RAINFIELD MODELS AND REMOTE SENSING  
*Period Obligations*  
 04/12/1991-01/31/1994 FY93: \$72,000 TOTAL: \$219,049  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J B VALDES HQ/G ASRAR 39-Env Sci, NEC  
 G R NORTH ....J S THEON

**NAGW 2922 Texas A&M University 7524**  
 EXPERIMENTAL DETERMINATION OF THE STRUCTURE OF THE SEA  
 SURFACE INFLUENCING RADIO OBSERVATIONS  
*Period Obligations*  
 02/27/1992-01/31/1994 FY93: \$40,000 TOTAL: \$105,893  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R STEWART HQ/J S THEON 31-Atmos Sci

**NAGW 3054 Texas A&M University 7525**  
 NAGW-3054/TEXAS AANDM RESEARCH FOUNDATION/ATMOSPHERI  
 C CONDENSATIONAL PROPERTIES OF ULTRAFINE CHAIN  
*Period Obligations*  
 04/17/1992-08/31/1995 FY93: \$147,963 TOTAL: \$289,006  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 W H MARLOW HQ/J K ALEXANDER 31-Atmos Sci  
 ....D A HOLLAND



# NASA'S UNIVERSITY PROGRAM

## TEXAS (Continued)

**NAGW 3186 Texas A&M University 7526**  
 NAGW-3186/TEXAS A&M UNIV/CONSTRUCTING A RECORD OF  
 TROPICAL DEFORESTATION USING LANDSAT, AVHRR,  
*Period Obligations*  
 08/28/1992-07/31/1993 FY93: \$0 TOTAL: \$57,538  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J GIARDINO HQ/M R HALFERT 39-Env Sci, NEC  
 F HOSKINS ....D M BUTLER

**NAGW 3272 Texas A&M University 7527**  
 NAGW-3272/TEXAS A&M UNIV/SOUTHEAST ASIS STRUCTURE,  
 TECTONIC AND MAGMATISM SYMPOSIUM  
*Period Obligations*  
 12/04/1992-08/31/1993 FY93: \$8,000 TOTAL: \$8,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 Y W HILDE HQ/M BALTUCK 32-Geological Sci

**NAGW 3363 Texas A&M University 7528**  
 COMP. BET. CZCS-MEA. AER. RAD. AND MAR. BOUNDARY LAY ER  
 MINERAL AER. CON.  
*Period Obligations*  
 02/18/1993-02/28/1994 FY93: \$48,645 TOTAL: \$48,645  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 N W TINDALE HQ/J A KAYE 31-Atmos Sci  
 ....R E MURPHY

**NAGW 3442 Texas A&M University 7529**  
 OBSERVATIONAL AND MODEL STUDIES OF LARGE SCALE MIX ING  
 PROCESSES IN THE STRATOSPHERE  
*Period Obligations*  
 03/17/1993-02/28/1994 FY93: \$69,989 TOTAL: \$69,989  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 K P BOWMAN HQ/J A KAYE 31-Atmos Sci  
 ....R E MURPHY

**NAGW 3652 Texas A&M University 7530**  
 THE REMOTE SENSING OF MINERAL AEROSOLS AND THEIR I MPACT  
 ON PHYTOPLANKTON PRODUCTIVITY USING SEAWIFS  
*Period Obligations*  
 06/15/1993-04/30/1994 FY93: \$25,000 TOTAL: \$25,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 N W TINDALE HQ/J A KAYE 33-Oceanography  
 ....R E MURPHY

**NAS 1-19373 Texas A&M University 7531**  
 CONTROL LAWS FOR NEAR MINIMUM-TIME MANEUVERS WITH  
 VIBRATION SUPPRESSION  
*Period Obligations*  
 08/23/1991-12/23/1993 FY93: \$55,000 TOTAL: \$185,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S R VADELI LARC/R TAYLOR 49-Engr, NEC  
 J L JUNKINS ....J R NEWSOM

**NAS 8-37821 Texas A&M University 7532**  
 PUMP-IMPELLER SHROUD SURFACES STUDY  
*Period Obligations*  
 04/26/1989-09/30/1993 FY93: \$0 TOTAL: \$298,241  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 W CHILDS MSFC/J CANNON 41-Aero Engr  
 E BASKHARONE ....L GROSS

**NAS 9-18261 Texas A&M University 7533**  
 WIND TUNNEL TESTING OF SHUTTLE AND SPACE STATION  
 PROJECTS  
*Period Obligations*  
 01/25/1990-03/12/1993 FY93: \$23,937 TOTAL: \$123,937  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 O NICKS JSC/D KANIPE 41-Aero Engr

**NAS 9-18882 Texas A&M University 7534**  
 WIND TUNNEL SUPPORT  
*Period Obligations*  
 04/16/1993-04/16/1996 FY93: \$35,000 TOTAL: \$35,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 O NICKS JSC/R E MEYERSON 41-Aero Engr

**NCA 2-717 Texas A&M University 7535**  
 PREDICTIONS OF CONSTRAINT EFFECTS ON ELASTIC-PLAST IC  
 FRACTURE IN WELDED STRUCTURES  
*Period Obligations*  
 05/21/1992-06/14/1994 FY93: \$0 TOTAL: \$78,815  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 T L ANDERSON ARC/T L PANONTIN 46-Mech Engr

**NCC 2-742 Texas A&M University 7536**  
 INTERMITTENT FLOW VISUALIZATION SYSTEM: PROTOTYPE  
 DESIGN  
*Period Obligations*  
 12/18/1991-12/31/1993 FY93: \$29,936 TOTAL: \$99,936  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D T WARD ARC/J H DEL FRATE 41-Aero Engr  
 ....R E CURRY

**NCC 2-770 Texas A&M University 7537**  
 COORDINATED SCHEDULING FOR DYNAMIC REAL-TIME SYSTE MS  
*Period Obligations*  
 08/19/1992-07/14/1993 FY93: \$0 TOTAL: \$50,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 W WEIZHAO ARC/A GOFORTH 22-Computer Science  
 S NATARAIAH ....Y K LIU

**NCC 2-791 Texas A&M University 7538**  
 A PARALLEL ADA ATRANSLATION SYSTEM FOR MASIVELY P  
 ARALLEL COMPUTERS  
*Period Obligations*  
 04/20/1993-03/31/1994 FY93: \$99,996 TOTAL: \$99,996  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R A VOLZ ARC/A GOFORTH 22-Computer Science  
 ....Y K LIU

**NGT 00-030-032 Texas A&M University 7539**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
 11/16/1990-08/31/1993 FY93: \$0 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 W M CHILDRESS HQ/G ASRAR 39-Env Sci, NEC

**NGT 00-050-380 Texas A&M University 7540**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 08/23/1988-12/31/1992 FY93: \$0 TOTAL: \$80,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J POSTON HQ/F C OWENS 13-Physics

# NASA'S UNIVERSITY PROGRAM

## TEXAS (Continued)

**NGT 00-050-401 Texas A&M University 7541**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 08/28/1989-08/31/1992 FY93: \$0 TOTAL: \$62,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J H PAINTER HQ/F C OWENS 45-Elec Engr

**NGT 00-070-221 Texas A&M University 7549**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
 MINORITY FOCUS PROGRAM  
*Period Obligations*  
 06/26/1991-06/30/1994 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 P N ROSCHKE HQ/F C OWENS 44-Civil Engr

**NGT 00-050-595 Texas A&M University 7542**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 09/27/1990-09/02/1993 FY93: \$0 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 F BEST HQ/F C OWENS 45-Elec Engr

**NGT 00-070-248 Texas A&M University 7550**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
 MINORITY FOCUS PROGRAM  
*Period Obligations*  
 05/29/1992-05/31/1993 FY93: \$22,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 F R BEST JSC/S GOLDSTEIN 49-Engr, NEC

**NGT 00-050-690 Texas A&M University 7543**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 01/31/1991-12/31/1993 FY93: \$22,000 TOTAL: \$88,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 E RYKIEL HQ/F C OWENS 51-Biological Sci  
 ....M AVERNER

**NGT 00-070-304 Texas A&M University 7551**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
 MINORITY FOCUS PROGRAM  
*Period Obligations*  
 05/28/1993-05/31/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 K CHANG HQ/D K RUSSELL 45-Elec Engr

**NGT 00-050-733 Texas A&M University 7544**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 07/25/1991-08/24/1994 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A PARLOS HQ/F C OWENS 49-Engr, NEC

**NGT 00-090-128 Texas A&M University 7552**  
 UNDERGRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 09/26/1992-08/14/1994 FY93: \$12,000 TOTAL: \$24,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 W D TURNER HQ/D K RUSSELL 99-Multi-Discip

**NGT 00-050-738 Texas A&M University 7545**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 09/03/1991-08/31/1994 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J YEN HQ/F C OWENS 22-Computer Science

**NGT 00-090-129 Texas A&M University 7553**  
 UNDERGRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 09/24/1992-08/14/1993 FY93: \$0 TOTAL: \$12,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 W D TURNER HQ/D K RUSSELL 99-Multi-Discip

**NGT 00-050-837 Texas A&M University 7546**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 08/12/1991-08/31/1994 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 G YEN HQ/F C OWENS 22-Computer Science

**NGT 00-090-168 Texas A&M University 7554**  
 UNDERGRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 08/27/1993-08/14/1994 FY93: \$12,000 TOTAL: \$12,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 W D TURNER HQ/D RUSSELL 99-Multi-Discip

**NGT 00-070-108 Texas A&M University 7547**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
 MINORITY FOCUS PROGRAM  
*Period Obligations*  
 11/30/1988-12/31/1991 FY93: \$183 TOTAL: \$57,817  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 C S LESSARD HQ/F C OWENS 49-Engr, NEC

**NGT 00-090-169 Texas A&M University 7555**  
 UNDERGRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 09/09/1993-08/14/1994 FY93: \$12,000 TOTAL: \$12,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 W D TURNER HQ/D K RUSSELL 99-Multi-Discip

**NGT 00-070-185 Texas A&M University 7548**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
 MINORITY FOCUS PROGRAM  
*Period Obligations*  
 09/05/1990-08/31/1994 FY93: \$22,000 TOTAL: \$88,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A G PARLOS HQ/F C OWENS 49-Engr, NEC

**NGT 00-090-190 Texas A&M University 7556**  
 UNDERGRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 08/27/1993-08/14/1994 FY93: \$12,000 TOTAL: \$12,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 W D TURNER HQ/D RUSSELL 99-Multi-Discip

**NASA'S UNIVERSITY PROGRAM**  
**TEXAS (Continued)**

**NGT 00-090-191 Texas A&M University 7557**  
 UNDERGRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 08/27/1993-08/14/1994 FY93: \$12,000 TOTAL: \$12,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 W D TURNER HQ/D K RUSSELL 99-Multi-Discip

**NGT 00-090-217 Texas A&M University 7558**  
 UNDERGRADUATE STUDENT RESEARCHERS (UMF) PROGRAM  
*Period Obligations*  
 09/23/1993-08/14/1994 FY93: \$12,000 TOTAL: \$12,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 W D TURNER HQ/D K RUSSELL 99-Multi-Discip

**NGT 00-090-218 Texas A&M University 7559**  
 UNDERGRADUATE STUDENT RESEARCHERS (UMF) PROGRAM  
*Period Obligations*  
 09/23/1993-08/14/1994 FY93: \$12,000 TOTAL: \$12,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 W D TURNER HQ/D K RUSSELL 99-Multi-Discip

**NGT44-1800 Texas A&M University 7560**  
 NASA ASEE SUMMER FACULTY FELLOWSHIP PROGRAM  
*Period Obligations*  
 01/01/1980-04/30/1995 FY93: \$429,588 TOTAL: \$2,469,050  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 W A HYMAN HQ/A S MCGEE 49-Engr, NEC  
 ....E T SCHWARTZ

**NAG 1-793 Texas A&M University System 7561**  
 AN INITIAL INVESTIGATION INTO METHODS OF COMPUTING  
 TRANSONIC AERODYNAMIC SENSITIVITY COEFFICIENTS  
*Period Obligations*  
 06/29/1987-08/31/1993 FY93: \$0 TOTAL: \$110,395  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 L A CARLSON LARC/W WHITLOW 41-Aero Engr  
 ....P NEWMAN

**NAG 1-1260 Texas A&M University System 7562**  
 EXPERIMENTAL VERIFICATION OF A NEW NATURAL LAMINAR FLOW  
 AIRFOIL-A PROPOSAL FOR THE GRADUATE PROG. FD  
*Period Obligations*  
 04/23/1991-03/15/1992 FY93: \$0 TOTAL: \$19,451  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 O W NICKS LARC/R J MCGHEE 41-Aero Engr  
 K D KORKAN

**NAG 2-651 Texas A&M University System 7563**  
 INTERMITTENT FLOW VISUALIZATION SYSTEM: PROTOTYP E  
 DESIGN  
*Period Obligations*  
 06/29/1990-12/31/1991 FY93: \$0 TOTAL: \$129,936  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D T WARD ARC/J H DEL FRATE 41-Aero Engr  
 J H MYATT ....R E CURRY

**NAG 3-944 Texas A&M University System 7564**  
 ACCOMODATIONS OF NUCLEAR COMPONENTS  
*Period Obligations*  
 10/20/1988-10/15/1992 FY93: \$0 TOTAL: \$150,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 K L PEDDICORD LERC/S M STEVENSON 49-Engr, NEC

**NAG 3-1256 Texas A&M University System 7565**  
 HEAT TRANSFER AND BOUNDARY LAYER TRANSITION UNDER TU  
 RBOMACHINERY FLOW CONDITIONS  
*Period Obligations*  
 03/12/1991-02/24/1994 FY93: \$50,000 TOTAL: \$113,100  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 T M SCHOBELIRI LERC/B L COMPOLI 46-Mech Engr  
 ....R J SIMONEAU

**NASW 4679 Texas A&M University System 7566**  
 NASW-4679/TX ENG'G EXPERIMENT STAITON/NASA RTTC LOCATED  
 IN THE MID-CONTINENT REGION OF THE U.S.  
*Period Obligations*  
 12/20/1991-12/31/1993 FY93: \$1,978,000 TOTAL: \$2,728,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 G SERA HQ/F E PEWARANDA 99-Multi-Discip

**NGT 00-030-012 Texas A&M University System 7567**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
 10/11/1990-08/31/1992 FY93: \$38 TOTAL: \$43,962  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J W HARDIN HQ/G ASRAR 22-Computer Science

**NGT 00-070-186 Texas A&M University System 7568**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
 MINORITY FOCUS PROGRAM  
*Period Obligations*  
 07/24/1990-08/31/1992 FY93: \$0 TOTAL: \$43,992  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A LEFTON HQ/F C OWENS 43-Chem Engr

**NAG 9-507 Texas College of Osteopathic Medicine 7569**  
 VALIDATION OF PORTABLE COSMED K2 OXYGEN SYSTEM  
*Period Obligations*  
 04/08/1991-09/01/1992 FY93: \$370 TOTAL: \$50,630  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 P B RAVEN JSC/M C GREENISEN 56-Medical Sciences

**NAG 9-611 Texas College of Osteopathic Medicine 7570**  
 ALTERATIONS IN HUMAN BARORECEPTOR  
*Period Obligations*  
 05/15/1992-05/01/1994 FY93: \$60,000 TOTAL: \$118,999  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 P B RAVEN JSC/S M FORTNEY 56-Medical Sciences  
 ....J B CHARLES

**NGT 00-050-751 Texas College of Osteopathic Medicine 7571**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 09/19/1991-08/31/1993 FY93: \$0 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 P B RAVEN HQ/F C OWENS 56-Medical Sciences

**NAG 8-818 Texas Southern University 7572**  
 JOVE PILOT RESEARCH STUDY  
*Period Obligations*  
 03/23/1990-08/27/1994 FY93: \$15,370 TOTAL: \$86,842  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S A ARYA MSFC/C R CHAPPELL 31-Atmos Sci  
 ....N F SIX

**NASA'S UNIVERSITY PROGRAM**  
**TEXAS (Continued)**

**NAG 9-299 Texas Southern University 7573**  
 PREPARATION AND STUDY OF TITANIUM, ZIRCONIUM AND HAFNIUM COMPLEXES  
*Period Obligations*  
 06/01/1988-10/01/1993 FY93: \$65,000 TOTAL: \$333,043  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 B L WILSON JSC/D S MCKAY 12-Chemistry

**NAG 9-590 Texas Tech University 7581**  
 ADAPTIVE FUZZY SYSTEM FOR CONTROL AND RECOGNITION OF SPACE OBJECTS  
*Period Obligations*  
 05/17/1992-03/31/1993 FY93: \$0 TOTAL: \$69,188  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S MITRA JSC/R N LEA 22-Computer Science

**NAG 9-325 Texas Southern University 7574**  
 INTERNATIONAL FOOD PATTERNS FOR SPACE  
*Period Obligations*  
 09/01/1988-10/01/1993 FY93: \$100,000 TOTAL: \$360,468  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S M AHMED JSC/C T BOURLAND 59-Life Sci, NEC  
 ....R R RITZ

**NAG 9-673 Texas Tech University 7582**  
 INTEGRATED ADAPTIVE FUZZY SYSTEM FOR IDENTIFICATION AND CONTROL OF SPACE OBJECTS  
*Period Obligations*  
 03/02/1993-04/01/1994 FY93: \$60,882 TOTAL: \$60,882  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S MITRA JSC/J A VILLARREAL 45-Elec Engr

**NAG 9-423 Texas Southern University 7575**  
 EXAMINATION OF IONIC SPECIES IN SOLUTION OF SIMULATED LUNAR REGOLITH AND SELECTED SOLVENTS  
*Period Obligations*  
 04/12/1990-10/01/1993 FY93: \$110,300 TOTAL: \$364,550  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R WILSON JSC/D HENNINGER 47-Materials Engr

**NGT 00-050-635 Texas Tech University 7583**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 08/30/1990-08/31/1993 FY93: \$0 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 L L HATFIELD HQ/F C OWENS 13-Physics

**NAG 9-456 Texas Southern University 7576**  
 CAREERS IN SCIENCE  
*Period Obligations*  
 07/02/1990-08/31/1994 FY93: \$212,286 TOTAL: \$376,181  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 W W BARNETT JSC/G JOHNSON 76-Sociology

**NAG 9-579 Texas Woman's University 7584**  
 DEVELOPMENT OF STRENGTH AND ANTHROPOMETRIC DATA BASE FOR COMPUTER MODELING/EVA UPPER EXTREMITY TASKS  
*Period Obligations*  
 04/03/1992-09/01/1993 FY93: \$0 TOTAL: \$61,290  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S M HASSON JSC/B WOOLFORD 56-Medical Sciences

**NAG 9-712 Texas Southern University 7577**  
 PHYROSLAXINS IN PLANT DISEASE DEVELOPMENT IN HYDRO PHONICS  
*Period Obligations*  
 09/22/1993-08/31/1994 FY93: \$100,000 TOTAL: \$100,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 O A JEJELOWO JSC/J D ATKINSON JR. 55-Agriculture Sci

**NAG 3-510 Univ Houston 7585**  
 2 PHASE FLOW @ ZERO GRAVITY  
*Period Obligations*  
 12/21/1983-12/02/1993 FY93: \$133,834 TOTAL: \$880,163  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A E DUKLER LERC/J B MCQUILLEN 43-Chem Engr

**NAGW 3060 Texas Southmost College 7578**  
 SOUTH TEXAS SCIENCE OUTREACH PROGRAM  
*Period Obligations*  
 05/04/1992-05/14/1994 FY93: \$109,493 TOTAL: \$190,488  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 L V LOF JSC/L ARMENDARIZ 99-Multi-Discip  
 P GOMEZ ....B L WHITE

**NAG 5-688 Univ Houston 7586**  
 COORDINATED IMAGING STUDY OF THE X-RAY AND VISIBLE AURORA BOREALIS  
*Period Obligations*  
 02/24/1992-08/31/1993 FY93: \$0 TOTAL: \$30,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 E A BERING GSFC/L J EARLY 13-Physics  
 ....R H PLESS

**NAG 1-1510 Texas Tech University 7579**  
 ELECTROMAGNETIC COMPATIBILITY TESTING STUDIES  
*Period Obligations*  
 05/28/1993-05/31/1994 FY93: \$70,000 TOTAL: \$70,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 T F TROST LARC/F L PITTS 45-Elec Engr

**NAG 9-213 Univ Houston 7587**  
 HIGH ALTITUDE OZONE WITH ROCKET PAYLOAD  
*Period Obligations*  
 01/01/1987-04/01/1993 FY93: \$0 TOTAL: \$119,335  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 W R SHELTON JSC/D E ROBBINS 31-Atmos Sci

**NAG 3-1172 Texas Tech University 7580**  
 ARCJET ELECTRODE DEGRADATION RESEARCH  
*Period Obligations*  
 05/10/1990-04/12/1994 FY93: \$236,240 TOTAL: \$662,240  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 E A O'HAIR LERC/F M CURRAN 42-Astro Engr  
 M KRISTIANSEN ....T W HAAG  
 L L HATFIELD

**NAG 9-284 Univ Houston 7588**  
 FORMATION OF IODINE BY-PRODUCTS  
*Period Obligations*  
 04/01/1988-03/01/1992 FY93: \$0 TOTAL: \$144,440  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J M SYMONS JSC/R L SAUER 44-Civil Engr

**NASA'S UNIVERSITY PROGRAM  
TEXAS (Continued)**

**NAG 9-365 Univ Houston 7589**  
MINERAL CHEMISTRY OF HED METEORITES  
*Period Obligations*  
06/01/1989-06/01/1994 FY93: \$0 TOTAL: \$174,581  
*Prin. Invest. NASA Tech. Officer CASE Category*  
A M REID JSC/I D BROWNE 32-Geological Sci

**NAG 9-380 Univ Houston 7590**  
STATE-SPACE SELF-TUNER FOR ON-LINE ADAPTIVE CONTROL  
*Period Obligations*  
06/01/1989-06/01/1994 FY93: \$0 TOTAL: \$295,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
L S SHIEH JSC/J W SUNKEL 45-Elec Engr

**NAG 9-405 Univ Houston 7591**  
DEVELOPMENT ENVIRONMENT FOR INTELLIGENT TRAINING SYSTEMS  
*Period Obligations*  
09/15/1989-08/31/1993 FY93: \$10,000 TOTAL: \$263,859  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R B LOFTIN JSC/R T SARELY 22-Computer Science

**NAG 9-417 Univ Houston 7592**  
LOW WEIGHT, ZERO POWER, HIGH QUALITY MAGNET REPLICAS  
*Period Obligations*  
04/11/1990-11/01/1992 FY93: \$51 TOTAL: \$110,449  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R WEINSTEIN JSC/G D ARNDT 13-Physics

**NAG 9-418 Univ Houston 7593**  
DEV AND EVAL OF LC/HIGH-PRESSURE FAST-ATOM BOMBARDMENT MASS SPECTROMETRY AND LC/THERMOSPIS  
*Period Obligations*  
04/02/1990-05/01/1993 FY93: \$2,451 TOTAL: \$57,549  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R B FREAS JSC/R L SAUER 12-Chemistry

**NAG 9-441 Univ Houston 7594**  
HIGH TC SUPERCONDUCTING ANTENNAS  
*Period Obligations*  
06/01/1990-12/01/1993 FY93: \$0 TOTAL: \$56,500  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J C WOLFE JSC/P NGO 45-Elec Engr  
J L WOSIK  
D ECONOMOU

**NAG 9-508 Univ Houston 7595**  
HIGH TEMPERATURE SUPER CONDUCTING MICROSTRIP ARRAY  
*Period Obligations*  
04/10/1991-04/01/1993 FY93: \$0 TOTAL: \$56,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J T WILLIAMS JSC/N PHONG 45-Elec Engr  
J C WOLFE ....G D ARNDT

**NAG 9-516 Univ Houston 7596**  
CLINICAL VERIFICATION OF IMAGE WARPING AS POTENTIAL AID FOR VISUALLY HANDICAPPED  
*Period Obligations*  
05/01/1991-05/01/1994 FY93: \$0 TOTAL: \$25,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D S LOSHIN JSC/R JUDAY 56-Medical Sciences

**NAG 9-532 Univ Houston 7597**  
DETERMINATION OF THERMAL CONDUCTIVITY OF INSULATING MATERIALS  
*Period Obligations*  
06/12/1991-07/01/1993 FY93: \$0 TOTAL: \$30,776  
*Prin. Invest. NASA Tech. Officer CASE Category*  
L C WITTE JSC/P PETETE 46-Mech Engr

**NAG 9-542 Univ Houston 7598**  
SPACE SYSTEMS EMC/EMI ANALYSIS USING IEMCAP  
*Period Obligations*  
07/31/1991-09/01/1992 FY93: \$542 TOTAL: \$21,448  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D WILTON JSC/G D ARNDT 45-Elec Engr

**NAG 9-543 Univ Houston 7599**  
USER LOCATOR SYSTEM FOR SPACE STATION FREEDOM  
*Period Obligations*  
08/01/1991-09/01/1992 FY93: \$3,769 TOTAL: \$32,629  
*Prin. Invest. NASA Tech. Officer CASE Category*  
P KTONAS JSC/J H SUDDATH 45-Elec Engr

**NAG 9-544 Univ Houston 7600**  
SOFTWARE FOR AUTONOMOUS CONTROL OF AEROSPACE POWER SYSTEMS  
*Period Obligations*  
07/29/1991-04/01/1994 FY93: \$28,419 TOTAL: \$49,716  
*Prin. Invest. NASA Tech. Officer CASE Category*  
B H JANSEN JSC/J BURKE 41-Aero Engr

**NAG 9-546 Univ Houston 7601**  
STUDY OF TWO PHASE FLOW  
*Period Obligations*  
09/01/1991-03/01/1993 FY93: \$0 TOTAL: \$5,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
L C WITTE JSC/E UNGAR 46-Mech Engr

**NAG 9-555 Univ Houston 7602**  
AN EVALUATION OF TRAINING EFFECTIVENESS OF INTELLIGENT TUTORING SYSTEM  
*Period Obligations*  
09/30/1991-08/31/1993 FY93: \$0 TOTAL: \$24,350  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D S JOHNSON JSC/R T SARELY 69-Psych, NEC

**NAG 9-558 Univ Houston 7603**  
TAGUCHI OPTIMIZATION OF DESIGN PARAMETERS FOR A SHUTTLE TO SPACE STATION AUTOMATED APPROACH CNTL SY  
*Period Obligations*  
09/30/1991-08/31/1992 FY93: \$29 TOTAL: \$14,968  
*Prin. Invest. NASA Tech. Officer CASE Category*  
E E DEAL JSC/S H GOLDSTEIN 49-Engr, NEC

**NASA'S UNIVERSITY PROGRAM  
TEXAS (Continued)**

**NAG 9-562 Univ Houston 7604**  
LITERACY TUTOR INTELLIGENT COMPUTER-AIDED TRAINING  
SYSTEM  
*Period Obligations*  
11/19/1991-11/30/1993 FY93: \$55,000 TOTAL: \$142,267  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J B WILLIS JSC/J A VILLARREAL 29-Math/Computer,NEC

**NAG 9-565 Univ Houston 7605**  
MEASURE CHANGES IN OPINIONS OF SCIENTIFIC FIELDS AND  
CAREERS IN MINORITY MIDDLE AND HIGH SCHOOLS  
*Period Obligations*  
09/30/1991-09/01/1993 FY93: \$0 TOTAL: \$36,381  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R D ALO JSC/C M HOSKINS 79-Soc Sci, NEC

**NAG 9-578 Univ Houston 7606**  
SELF ORGANIZATION VIA ACTIVE EXPLORATION IN ROBOTIC  
APPLICATION  
*Period Obligations*  
04/07/1992-09/01/1993 FY93: \$0 TOTAL: \$48,849  
*Prin. Invest. NASA Tech. Officer CASE Category*  
H A OGMEN JSC/H NGUYEN 45-Elec Engr

**NAG 9-589 Univ Houston 7607**  
ACRV LANDING IMPACT ANALYSIS OF SOIL PROPERTIES  
*Period Obligations*  
06/15/1992-06/01/1993 FY93: \$121 TOTAL: \$7,279  
*Prin. Invest. NASA Tech. Officer CASE Category*  
M W O'NEILL JSC/S W MILLARD 44-Civil Engr

**NAG 9-591 Univ Houston 7608**  
LUNAR BASE MOCKUP EVALUATION AND ADVANCEMENT STUDY  
*Period Obligations*  
04/29/1992-05/01/1993 FY93: \$0 TOTAL: \$56,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
L BELL JSC/R L BOND 19-Phys Sci, NEC

**NAG 9-592 Univ Houston 7609**  
AEROSPACE DEVICES FROM MAGNET REPLICAS  
*Period Obligations*  
04/27/1992-05/01/1994 FY93: \$65,000 TOTAL: \$125,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R WEINSTEIN JSC/G D ARNDT 13-Physics

**NAG 9-593 Univ Houston 7610**  
HIGH TEMPERATURE SUPERCONDUCTING ANTENNA ARRAY FOR  
FLIGHT COMMUNICATIONS EXPERIMENT  
*Period Obligations*  
04/27/1992-05/01/1993 FY93: \$0 TOTAL: \$59,997  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J T WILLIAMS JSC/P NGO 45-Elec Engr  
S A LONG  
J C WOLFE

**NAG 9-616 Univ Houston 7611**  
SIMULATION REDUCTION USING THE TAGUCHI METHOD  
*Period Obligations*  
06/04/1992-05/01/1993 FY93: \$0 TOTAL: \$45,110  
*Prin. Invest. NASA Tech. Officer CASE Category*  
F MISTREE JSC/J JOHNSON 49-Engr, NEC

**NAG 9-632 Univ Houston 7612**  
SHOCK PHENOMENA IN METEORITES  
*Period Obligations*  
09/01/1992-08/01/1993 FY93: \$0 TOTAL: \$24,889  
*Prin. Invest. NASA Tech. Officer CASE Category*  
A REID JSC/F HORZ 32-Geological Sci

**NAG 9-657 Univ Houston 7613**  
SCIENTIFIC AND TECHNICAL INSTRUCTIONAL SUPPORT FOC USING  
ON UNDERREPRESENTED MINORITIES  
*Period Obligations*  
12/04/1992-12/01/1993 FY93: \$66,980 TOTAL: \$66,980  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R A ALO JSC/C M HOSKINS 29-Math/Computer,NEC

**NAG 9-658 Univ Houston 7614**  
HOUSTON BRIDGE PROGRAM  
*Period Obligations*  
12/14/1992-10/31/1993 FY93: \$29,700 TOTAL: \$29,700  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J M BENNETT JSC/J D ATKINSON 99-Multi-Discip

**NAG 9-662 Univ Houston 7615**  
INTERNATIONAL DESIGN FOR EXTREME ENVIRONMENTS ASSE  
MBLY CONFERENCE  
*Period Obligations*  
01/27/1993-01/01/1994 FY93: \$15,000 TOTAL: \$15,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
L BELL JSC/K HENDERSON 44-Civil Engr

**NAG 9-672 Univ Houston 7616**  
ADVANCED SIMULATOR FOR PARTIAL/ZERO GRAVITY  
*Period Obligations*  
03/03/1993-03/01/1994 FY93: \$45,157 TOTAL: \$45,157  
*Prin. Invest. NASA Tech. Officer CASE Category*  
P NANUA JSC/L OTHON 46-Mech Engr

**NAG 9-674 Univ Houston 7617**  
STUDIES OF GAS LIQUID SLUG FLOW AT REDUCED GRAVITY  
CONDITIONS  
*Period Obligations*  
03/03/1993-03/01/1994 FY93: \$56,178 TOTAL: \$56,178  
*Prin. Invest. NASA Tech. Officer CASE Category*  
A F DUKLER JSC/K MILLER 43-Chem Engr

**NAG 9-713 Univ Houston 7618**  
DEVELOPMENT ADVANCED TRAINING TECHNOLOGIES  
*Period Obligations*  
09/30/1993-08/31/1995 FY93: \$212,093 TOTAL: \$212,093  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R B LOFTIN JSC/C CULBERT 22-Computer Science

**NASA'S UNIVERSITY PROGRAM**  
**TEXAS (Continued)**

**NAGW 977 Univ Houston 7619**  
 ESTAB CENTER FOR COMM DEVEL OF SPACE  
*Period Obligations*  
 09/01/1986-10/14/1993 FY93: \$5,834,500 TOTAL: \$25,007,378  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 C W CHU HQ/W A ORAN 51-Biological Sci  
 J T NORRIS ....A VILLAMIL

**NGT 00-050-590 Univ Houston 7627**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 09/11/1990-08/31/1993 FY93: \$0 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 L C WITTE HQ/F C OWENS 46-Mech Engr

**NAGW 2108 Univ Houston 7620**  
 IBOSOMAL RNA EVOLUTION AND MICROBIAL PHYLOGENY  
*Period Obligations*  
 06/07/1990-11/30/1993 FY93: \$69,000 TOTAL: \$266,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 G E FOX HQ/J D RUMMEL 51-Biological Sci

**NGT 00-050-619 Univ Houston 7628**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 07/24/1990-06/30/1992 FY93: \$0 TOTAL: \$28,873  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 G E FOX HQ/F C OWENS 51-Biological Sci

**NAGW 2788 Univ Houston 7621**  
 ORGANIC CHEMISTRY  
*Period Obligations*  
 12/06/1991-09/30/1993 FY93: \$50,411 TOTAL: \$145,411  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J ORO HQ/J D RUMMEL 12-Chemistry

**NGT 00-050-875 Univ Houston 7629**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 07/24/1992-07/31/1994 FY93: \$22,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 F HUSSAIN JSC/S GOLDSTEIN 46-Mech Engr

**NAGW 3191 Univ Houston 7622**  
 NAGW-3191/UNIV HOUSTON/NASA SPACE LIFE SCIENCES TRAINING  
 PROGRAM FEASIBILITY STUDY  
*Period Obligations*  
 09/17/1992-07/31/1994 FY93: \$0 TOTAL: \$5,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 I WOLINSKY HQ/G R COULTER 59-Life Sci, NEC

**NGT 00-051-022 Univ Houston 7630**  
 GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 05/14/1993-06/30/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 F HUSSAIN ARC/M MOORE 46-Mech Engr

**NAGW 3623 Univ Houston 7623**  
 EUCRITES, HOWARDITES AND CV CHRONDRITES  
*Period Obligations*  
 05/28/1993-05/31/1994 FY93: \$33,139 TOTAL: \$33,139  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A REID HQ/J BOYCE 32-Geological Sci

**NGT 00-051-085 Univ Houston 7631**  
 GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 06/01/1993-06/30/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 G E FOX HQ/D HOLLAND 12-Chemistry

**NCC 2-801 Univ Houston 7624**  
 EFFECTS OF DIETARY SALT ON BONE IN MATURE RATS DURING  
 A FLIGHT SIMULATION MODEL  
*Period Obligations*  
 05/20/1993-08/31/1993 FY93: \$18,892 TOTAL: \$18,892  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S B ARNAUD ARC/R E GRINDELAND 59-Life Sci, NEC  
 I WOLINSKY ....S B ARNAUD

**NGT 00-051-159 Univ Houston 7632**  
 GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 07/26/1992-06/30/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A E DUKLER LERC/F MONTEGANI 43-Chem Engr

**NGR44-5002 Univ Houston 7625**  
 EARTH CONDITIONS AND OF ORGANIC MATERIAL IN SELECTED  
 METEORITES LIFE SCIENCES  
*Period Obligations*  
 06/18/1962-09/30/1991 FY93: \$0 TOTAL: \$2,278,256  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J ORO HQ/J D RUMMEL 32-Geological Sci  
 ....M AVERNER

**NGT 00-070-250 Univ Houston 7633**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
 MINORITY FOCUS PROGRAM  
*Period Obligations*  
 05/08/1992-06/30/1994 FY93: \$22,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 T GOLDING HQ/D K RUSSELL 13-Physics

**NGT 00-050-415 Univ Houston 7626**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 08/28/1989-12/31/1992 FY93: \$0 TOTAL: \$69,333  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A POWELL HQ/F C OWENS 46-Mech Engr

**NGT 00-090-176 Univ Houston 7634**  
 UNDERGRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 08/27/1993-08/14/1994 FY93: \$12,000 TOTAL: \$12,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 G F PASKUSZ HQ/D RUSSELL 99-Multi-Discip

**NASA'S UNIVERSITY PROGRAM  
TEXAS (Continued)**

**NGT44-5803 Univ Houston 7635**  
 TRAINING GRANT FOR CONDUCTING SUMMER FACULTY  
 FELLOWSHIP PROGRAM  
*Period Obligations*  
 01/01/1984-06/30/1994 FY93: \$10,000 TOTAL: \$1,822,943  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R B BANNEROT HQ/A S MCGEE 49-Engr, NEC  
 ....E T SCHWARTZ

**NGT 00-050-581 Univ of Texas Medical Branch - 7642**  
**Galveston**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 09/07/1990-08/31/1992 FY93: \$0 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M J CORREIA HQ/F C OWENS 56-Medical Sciences

**NAG 2-26 Univ of Texas Medical Branch - 7636**  
**Galveston**  
 CONTROL OTOLITHIC MECHANISMS IN NON-HUMAN PRIMATE  
*Period Obligations*  
 01/01/1980-01/31/1994 FY93: \$100,835 TOTAL: \$971,528  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A A PERACHIO ARC/N G DAUNTON 51-Biological Sci  
 M J CARRETA ....M L CORCORAN  
 G A KEVETTE

**NGT 00-050-736 Univ of Texas Medical Branch - 7643**  
**Galveston**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 07/02/1991-06/30/1994 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R M DENNEY HQ/F C OWENS 56-Medical Sciences

**NAG 2-260 Univ of Texas Medical Branch - 7637**  
**Galveston**  
 THE IDENTIFICATION AND PHARMACOLOGY OF  
 NEUROTRANSMITTERS IN THE VESTIBULAR NUCLEI  
*Period Obligations*  
 12/01/1987-01/31/1993 FY93: \$0 TOTAL: \$563,825  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J P GALLAGHER ARC/N G DAUNTON 51-Biological Sci  
 ....M L CORCORAN

**NGT 00-050-748 Univ of Texas Medical Branch - 7644**  
**Galveston**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 06/26/1991-06/30/1994 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A A PERACHIO HQ/F C OWENS 56-Medical Sciences

**NAG 2-446 Univ of Texas Medical Branch - 7638**  
**Galveston**  
 STUDIES OF VESTIBULAR PRIMARY AFFERENTS IN  
 NORMAL, HYPER- AND HYPOGRAVITY  
*Period Obligations*  
 10/01/1988-01/31/1994 FY93: \$225,557 TOTAL: \$1,057,657  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M J CORREIA ARC/J P CONNOLLY 51-Biological Sci  
 A A PERACHIO ....R W BALLARD

**NAG 2-730 Univ of Texas-Hlth Sci Ctr-San Antonio 7645**  
 EARLY DEVELOPMENT OF A GRAVITY-SENSING ORGAN IN M  
 ICROGRAVITY  
*Period Obligations*  
 08/20/1991-09/30/1993 FY93: \$134,023 TOTAL: \$266,873  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M L WIDERHOLD ARC/C M WINGET 51-Biological Sci

**NAG 2-780 Univ of Texas Medical Branch - 7639**  
**Galveston**  
 BASIC GRAVITATIONAL REFLEXES IN THE LARVAL FROG  
*Period Obligations*  
 04/20/1992-04/31/1993 FY93: \$58,200 TOTAL: \$118,200  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S L COCHRAN ARC/M L CORCORAN 51-Biological Sci  
 ....C E WADE

**NAG 9-687 Univ of Texas-Hlth Sci Ctr-San Antonio 7646**  
 HUMAN TISSUE MODELING  
*Period Obligations*  
 04/30/1993-03/01/1994 FY93: \$75,000 TOTAL: \$75,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M P MOYER JSC/G SPAULDING 56-Medical Sciences

**NAG 9-581 Univ of Texas Medical Branch - 7640**  
**Galveston**  
 INACTIVITY-RELATED MUSCLE ATROPHIN IN MAN  
*Period Obligations*  
 04/08/1992-04/01/1994 FY93: \$100,000 TOTAL: \$173,875  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 C A STUART JSC/R SAUER 56-Medical Sciences  
 ....H W LANE

**NAGW 2078 Univ of Texas-Hlth Sci Ctr-San Antonio 7647**  
 EARLY DEVELOPMENT OF A GRAVITY-RECEPTOR ORGAN IN M  
 ICROGRAVITY  
*Period Obligations*  
 08/09/1990-01/31/1993 FY93: \$0 TOTAL: \$60,268  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M L WIEDERHOLD HQ/T W HALSTEAD 51-Biological Sci

**NAS 9-18967 Univ of Texas Medical Branch - 7641**  
**Galveston**  
 PROTEIN TURNOVER INVESTIGATIONS  
*Period Obligations*  
 09/23/1993-01/01/1995 FY93: \$50,000 TOTAL: \$50,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R WOLFE JSC/H LANE 51-Biological Sci

**NAG 9-551 Univ of Texas-Pan American 7648**  
 GRAPHIC NETWORK DIAGRAM FOR LARGE INFORMATION SRVC  
*Period Obligations*  
 09/16/1991-09/15/1992 FY93: \$0 TOTAL: \$127,490  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R H FOWLER JSC/J D ATKINSON 31-Atmos Sci



# NASA'S UNIVERSITY PROGRAM

## TEXAS (Continued)

**NAG 9-552 Univ of Texas-Pan American 7649**  
 CORTICAL ACTIVATION PATTERNS IN PEOPLE DURING COMPUTER  
 GENERATED SIMULATIONS  
*Period Obligations*  
 09/16/1991-09/15/1992 FY93: \$0 TOTAL: \$146,246  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 V I ALVARADO JSC/J D ATKINSON 31-Atmos Sci

**NAG 9-553 Univ of Texas-Pan American 7650**  
 DIFFERENTIAL EQUATIONS WITH PIECEWISE CONTINUOUS.  
 ARGUMENT AND THEIR APPLICATION  
*Period Obligations*  
 09/16/1991-09/16/1993 FY93: \$0 TOTAL: \$139,174  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J WIENER JSC/J D ATKINSON 31-Atmos Sci

**NGT 00-090-043 Univ of Texas-Pan American 7651**  
 UNDERGRADUATE RESEARCHERS PROGRAM  
*Period Obligations*  
 08/22/1991-08/31/1994 FY93: \$36,000 TOTAL: \$112,942  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 W SHOCKLEY HQ/B WHITE 49-Engr, NEC

**NGT 00-090-101 Univ of Texas-Pan American 7652**  
 UNDERGRADUATE STUDENT RESEARCHERS PROGRAM (UMF)  
*Period Obligations*  
 09/12/1992-08/14/1994 FY93: \$12,000 TOTAL: \$24,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 W SHOCKLEY HQ/D K RUSSELL 99-Multi-Discip

**NGT 00-090-102 Univ of Texas-Pan American 7653**  
 UNDERGRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 09/12/1992-08/14/1994 FY93: \$12,000 TOTAL: \$24,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 W SHOCKLEY HQ/D K RUSSELL 99-Multi-Discip

**NGT 00-090-162 Univ of Texas-Pan American 7654**  
 UNDERGRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 08/26/1993-08/14/1994 FY93: \$12,000 TOTAL: \$12,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 W C SHOCKLEY HQ/D K RUSSELL 99-Multi-Discip

**NGT 00-090-163 Univ of Texas-Pan American 7655**  
 UNDERGRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 08/26/1993-08/14/1994 FY93: \$12,000 TOTAL: \$12,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 W C SHOCKLEY HQ/D K RUSSELL 99-Multi-Discip

**NGT 00-090-164 Univ of Texas-Pan American 7656**  
 UNDERGRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 08/27/1993-08/14/1994 FY93: \$12,000 TOTAL: \$12,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 W C SHOCKLEY HQ/D RUSSELL 99-Multi-Discip

**NAG 9-152 Univ of Texas, Health Sci Ctr-Dallas 7657**  
 STUDY OF RENAL STONE FORMATION  
*Period Obligations*  
 05/01/1986-05/01/1994 FY93: \$100,000 TOTAL: \$807,500  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 C Y PAK JSC/P A WHITSON 56-Medical Sciences  
 M NICAR ....H W LANE

**NAG 9-492 Univ of Texas, Health Sci Ctr-Dallas 7658**  
 THREE DIMENSIONAL, ECHOCARDIOGRAPHY FOR VENTRICULA R  
 GEOMETRY  
*Period Obligations*  
 02/22/1991-08/01/1994 FY93: \$51,872 TOTAL: \$163,122  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J C BUCKEY JSC/S M FORTNEY 56-Medical Sciences  
 ....J B CHARLES

**NAGW 3582 Univ of Texas, Health Sci Ctr-Dallas 7659**  
 MECHANISMS OF PHYSIOLOGICAL ADAPTATION TO MICROGRA  
 VITY  
*Period Obligations*  
 07/19/1993-05/31/1994 FY93: \$1,026,000 TOTAL: \$1,026,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 C G BLOMQVIST HQ/R J WHITE 56-Medical Sciences

**NAS 9-16044 Univ of Texas, Health Sci Ctr-Dallas 7660**  
 LIFE SCI EXPER CARDIOVASCULAR ADAPT  
*Period Obligations*  
 01/17/1980-10/01/1994 FY93: \$450,301 TOTAL: \$6,081,366  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 G BLOMQVIST JSC/W YOUNG 56-Medical Sciences

**NAS 9-18139 Univ of Texas, Health Sci Ctr-Dallas 7661**  
 LIFE SCIENCES FLIGHT EXPERIMENT 'CARDIOVASCULAR  
 REGULATION AT ZERO-G'  
*Period Obligations*  
 09/01/1989-04/01/1994 FY93: \$515,698 TOTAL: \$1,430,498  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 G BLOMQVIST JSC/C M BUNTIN 56-Medical Sciences

**NAS 9-18762 Univ of Texas, Health Sci Ctr-Dallas 7662**  
 CARFIOVASCULAR REGULATION AT ZERO GRAVITY  
*Period Obligations*  
 09/03/1992-03/31/1993 FY93: \$50,000 TOTAL: \$70,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 C G BLOMQVIST JSC/A PLAZA 51-Biological Sci

**NAG 9-664 Univ. of Texas Md Anderson Cancer Center 7663**  
 ANALYSIS AND PROMOTION OF LYMPHOCYTE LOCOMOTION  
 THMATRIX  
*Period Obligations*  
 03/09/1993-03/01/1994 FY93: \$100,000 TOTAL: \$100,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 N R PELLIS JSC/G SPAULDING 56-Medical Sciences

**NASA'S UNIVERSITY PROGRAM**  
**TEXAS (Continued)**

**NAG 2-239 Univ. of Texas-Hlth Science Ctr-Houston 7664**  
 BIOCHEMICAL ADAPTATION OF ANTI-GRAVITY MUSCLE FIBERS TO  
 DISUSE ATROPHY

Period	Obligations	
11/01/1987-09/30/1993	FY93: \$67,900	TOTAL: \$701,219
Prin. Invest.	NASA Tech. Officer	CASE Category
F W BOOTH	ARC/R E GRINDELAND	56-Medical Sciences

**NAG 9-215 Univ. of Texas-Hlth Science Ctr-Houston 7665**  
 PHYSIOLOGICAL EFFECTS OF VENOUS BUBBLES

Period	Obligations	
01/01/1987-12/31/1994	FY93: \$65,000	TOTAL: \$386,667
Prin. Invest.	NASA Tech. Officer	CASE Category
B D BUTLER	JSC/J M WALIGORA	56-Medical Sciences

**NAG 9-335 Univ. of Texas-Hlth Science Ctr-Houston 7666**  
 EVALUATE PHYSIOLOGIC CHANGES MICROGRAVIT

Period	Obligations	
01/01/1989-01/01/1994	FY93: \$150,000	TOTAL: \$912,287
Prin. Invest.	NASA Tech. Officer	CASE Category
V SCHNEIDER	JSC/S POOL	56-Medical Sciences

**NAG 9-413 Univ. of Texas-Hlth Science Ctr-Houston 7667**  
 DEVELOPMENT OF CORRELATIVE ELECTROPHYSIOLOGICAL  
 MEASURES FOR STUDY OF ATTENTION AND MEMORY  
 PROCESSIN

Period	Obligations	
02/26/1990-09/01/1993	FY93: \$0	TOTAL: \$64,350
Prin. Invest.	NASA Tech. Officer	CASE Category
J DEFRANCE	JSC/F A KUTYNA	56-Medical Sciences

**NAG 9-688 Univ. of Texas-Hlth Science Ctr-Houston 7668**  
 PROPAGATION OF NORWALK VIRUS USING APPLIED MICROGR  
 AVITY BIOTECHNOLOGY

Period	Obligations	
05/11/1993-06/01/1994	FY93: \$74,900	TOTAL: \$74,900
Prin. Invest.	NASA Tech. Officer	CASE Category
P C JOHNSON	JSC/G SPAULDING	56-Medical Sciences

**NCC 2-423 Univ. of Texas-Hlth Science Ctr-Houston 7669**  
 CHRONDROGENESIS IN MICROMASS CULTURES OF  
 EMBRYONIC LIMB MESENCHYME

Period	Obligations	
05/01/1986-04/30/1994	FY93: \$177,225	TOTAL: \$1,312,288
Prin. Invest.	NASA Tech. Officer	CASE Category
P J DUKE	ARC/C M WINGET	51-Biological Sci
	....R W BALLARD	

**NCC 9-20 Univ. of Texas-Hlth Science Ctr-Houston 7670**  
 HINDLIMB TISSUE GAS PHASE FORMATION IN RESPONSE TO  
 SUSPENSION ADYRAMIA AND HYPIKINESIA

Period	Obligations	
03/07/1991-02/01/1994	FY93: \$0	TOTAL: \$21,416
Prin. Invest.	NASA Tech. Officer	CASE Category
B BUTLER	JSC/M POWELL	56-Medical Sciences

**NGT 00-050-900 Univ. of Texas-Hlth Science Ctr-Houston 7671**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM

Period	Obligations	
05/29/1992-06/30/1993	FY93: \$0	TOTAL: \$22,000
Prin. Invest.	NASA Tech. Officer	CASE Category
B D BUTLER	HQ/J ALEXANDER	56-Medical Sciences

**NAG 9-569 University of Houston - Clear Lake 7672**  
 COMMUNITY COLLEGE CIRRICULUM DEBELOPMENT FOR AERO  
 SPACE OPERATIONS TECHNICIANS PHASE 1

Period	Obligations	
11/19/1991-08/31/1993	FY93: \$0	TOTAL: \$49,212
Prin. Invest.	NASA Tech. Officer	CASE Category
G B FREEDMAN	JSC/S H GOLDSTEIN	99-Multi-Discip

**NAG 9-584 University of Houston - Clear Lake 7673**  
 INTEGRATED SCHEDULING TECHNIQUES FOR SPACE VEHICLE  
 PROGRAMS

Period	Obligations	
04/18/1992-11/01/1993	FY93: \$0	TOTAL: \$52,836
Prin. Invest.	NASA Tech. Officer	CASE Category
S DAVARI	JSC/P A MARTINEZ	22-Computer Science
W ZHAO		

**NAG 9-660 University of Houston - Clear Lake 7674**  
 DEVELOPMENT OF TEXAS TECHNOLOGY TARGETING PROGRAM.

Period	Obligations	
01/15/1993-12/31/1993	FY93: \$50,000	TOTAL: \$50,000
Prin. Invest.	NASA Tech. Officer	CASE Category
P BISHOP	JSC/K E HENDERSON	99-Multi-Discip

**NCC 9-16 University of Houston - Clear Lake 7675**  
 RESEARCH INSTITUTE FOR COMPUTING SYSTEMS

Period	Obligations	
06/09/1986-06/30/1995	FY93: \$5,806,457	TOTAL: \$42,130,222
Prin. Invest.	NASA Tech. Officer	CASE Category
E T DICKERSON	JSC/R B MACDONALD	22-Computer Science
A G HOUSTON	....J R GARMAN	

**NGT 00-090-031 University of Houston - Clear Lake 7676**  
 TRAINING PROG RAM FOR THE STUDIES IN ENERGY AND SPACE  
 TECHNOLOGY

Period	Obligations	
05/10/1990-05/31/1994	FY93: \$73,883	TOTAL: \$588,427
Prin. Invest.	NASA Tech. Officer	CASE Category
G SAWYER	HQ/M S MARGOLIS	29-Math/Computer, NEC
W MILLER		

**NAG 1-1468 University of North Texas 7677**  
 SCANNING TUNNELING MICROSCOPY STUDIES OF DIAMOND FILMS  
 AND OPTOELECTRONIC MATERIALS - MY 1/3

Period	Obligations	
01/29/1993-11/30/1993	FY93: \$74,993	TOTAL: \$74,993
Prin. Invest.	NASA Tech. Officer	CASE Category
J M PEREZ	LARC/J J SINGH	13-Physics

**NAG 9-586 University of Texas - Arlington 7678**  
 ORBITAL DEBRIS SHIELDS FOR OBLIQUE HYPERVELOCITY IMPACT

Period	Obligations	
04/15/1992-01/01/1994	FY93: \$0	TOTAL: \$59,341
Prin. Invest.	NASA Tech. Officer	CASE Category
E P FAHRENTHOLD	JSC/E L CHRISTENSEN	46-Mech Engr

**NASA'S UNIVERSITY PROGRAM**  
**TEXAS (Continued)**

**NAG 9-587 University of Texas - Arlington 7679**  
 IMAGE BASED NAVIGATION FOR AUTONOMOUS LANDING DURING PLANETARY MISSIONS  

Period	Obligations	
04/15/1992-11/01/1993	FY93: \$0	TOTAL: \$59,329
Prin. Invest.	NASA Tech. Officer	CASE Category
V DEVARAJAN	JSC/K BAKER	45-Elec Engr

**NAG 1-1005 University of Texas - Austin 7687**  
 EXPLORATORY EXPERIMENTAL STUDY OF SEPARATION SHOCK WAVE DYNAMICS IN HIGHLY SWEPT, TURBULENT INTERACT  

Period	Obligations	
07/06/1989-07/01/1993	FY93: \$1	TOTAL: \$214,050
Prin. Invest.	NASA Tech. Officer	CASE Category
D S DOLLING	LARC/W E ZORUMSKI	41-Aero Engr
	....T L PARROTT	

**NAGW 3091 University of Texas - Arlington 7680**  
 OPTIMIZED INVERSION FOR GEOPHYSICAL PARAMETERS FROM MODELING AND NEURAL NETWORKS  

Period	Obligations	
05/29/1992-02/28/1994	FY93: \$100,000	TOTAL: \$200,000
Prin. Invest.	NASA Tech. Officer	CASE Category
A K FUNG	HQ/D E WICKLAND	39-Env Sci, NEC
	....A C JANETOS	

**NAG 1-1121 University of Texas - Austin 7688**  
 MODELING THE GROWTH AND INTERACTION OF FRACTURES  

Period	Obligations	
03/26/1990-09/30/1993	FY93: \$51,118	TOTAL: \$148,966
Prin. Invest.	NASA Tech. Officer	CASE Category
M E MEAR	LARC/J C NEWMAN JR.	46-Mech Engr
	....C E HARRIS	

**NAGW 3421 University of Texas - Arlington 7681**  
 AN ADVANCED MODEL OF SOIL POLARIZED BIDIRECTIONAL REFLECTANCE  

Period	Obligations	
03/09/1993-12/31/1993	FY93: \$80,000	TOTAL: \$80,000
Prin. Invest.	NASA Tech. Officer	CASE Category
D P GIBBS	HQ/K J RANSON	39-Env Sci, NEC
	....D E WICKLAND	

**NAG 1-1204 University of Texas - Austin 7689**  
 MODEL STUDIES OF SONIC BOOM PROPAGATION THROUGH THE ATMOSPHERE  

Period	Obligations	
12/03/1990-01/31/1994	FY93: \$170,000	TOTAL: \$420,000
Prin. Invest.	NASA Tech. Officer	CASE Category
D T BLACKSTOCK	LARC/G L MCANINCH	41-Aero Engr
A J TUCKER	....A W MUELLER	

**NAGW 3714 University of Texas - Arlington 7682**  
 NASA/UTA CENTER FOR HYPERSONIC RESEARCH  

Period	Obligations	
08/13/1993-08/31/1996	FY93: \$50,000	TOTAL: \$50,000
Prin. Invest.	NASA Tech. Officer	CASE Category
D R WILSON	HQ/S WANDER	49-Engr, NEC

**NAG 1-1364 University of Texas - Austin 7690**  
 THE EFFECT OF A TYPE III AND TYPE IV SHOCK/SHOCK INTERACTION ON HEAT TRANSFER IN THE STAGNATION REGION  

Period	Obligations	
02/05/1992-02/04/1994	FY93: \$35,314	TOTAL: \$79,374
Prin. Invest.	NASA Tech. Officer	CASE Category
D E WILSON	LARC/R J NOWAK	46-Mech Engr
	....A R WIETING	

**NGT 00-050-585 University of Texas - Arlington 7683**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  

Period	Obligations	
08/31/1990-08/31/1993	FY93: \$0	TOTAL: \$66,000
Prin. Invest.	NASA Tech. Officer	CASE Category
A K FUNG	HQ/F C OWENS	45-Elec Engr

**NAG 1-1459 University of Texas - Austin 7691**  
 ADAPTIVE-GRID ALGORITHM FOR PRISMATIC ELEMENTS  

Period	Obligations	
12/04/1992-12/31/1993	FY93: \$29,554	TOTAL: \$29,554
Prin. Invest.	NASA Tech. Officer	CASE Category
J KALLINDERIS	LARC/R E SMITH	21-Mathematics
	....J J LAMBIOTTE	

**NGT 00-050-844 University of Texas - Arlington 7684**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  

Period	Obligations	
08/31/1991-06/30/1994	FY93: \$22,000	TOTAL: \$66,000
Prin. Invest.	NASA Tech. Officer	CASE Category
A K FUNG	HQ/F C OWENS	45-Elec Engr

**NAG 1-1471 University of Texas - Austin 7692**  
 CONTROL AND REDUCTION OF UNSTEADY PRESSURE LOADS IN SEPARATED SHOCK WAVE TURBULENT BOUNDARY LAYER INTERACTION  

Period	Obligations	
12/18/1992-01/08/1994	FY93: \$79,950	TOTAL: \$79,950
Prin. Invest.	NASA Tech. Officer	CASE Category
D S DOLLING	LARC/W E ZORUMSKI	41-Aero Engr

**NGT 00-050-896 University of Texas - Arlington 7685**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  

Period	Obligations	
08/14/1992-01/02/1995	FY93: \$22,000	TOTAL: \$44,000
Prin. Invest.	NASA Tech. Officer	CASE Category
S M YANG	LARC/E PRIOR	22-Computer Science

**NAG 2-67 University of Texas - Austin 7693**  
 STUDY OF DENSITY AND TEMPERATURE STRUCTURE OF CLOUDS AROUND LOW LUMINOSITY YOUNG STARS  

Period	Obligations	
09/01/1980-09/30/1994	FY93: \$288,500	TOTAL: \$3,457,421
Prin. Invest.	NASA Tech. Officer	CASE Category
P M HARVEY	ARC/C D LANGHLIN	11-Astronomy
	....H A HENDRIKS	

**NAG 1-944 University of Texas - Austin 7686**  
 ROBUST NEIGHBORING OPTIMUM GUIDANCE FOR THE LAUNCH SYSTEM  

Period	Obligations	
12/22/1988-12/19/1992	FY93: \$1	TOTAL: \$269,001
Prin. Invest.	NASA Tech. Officer	CASE Category
J L SPGYER	LARC/D D MOERDER	41-Aero Engr
D G HULL	....D B PRICE	

**NASA'S UNIVERSITY PROGRAM  
TEXAS (Continued)**

**NAG 2-372 University of Texas - Austin 7694**  
 FAR-INFRARED EMISSION LINE SPECTROSCOPY FOR THE KUIPER  
 AIRBORNE OBSERVATORY

Period	Obligations	
10/01/1987-09/30/1992	FY93: \$0	TOTAL: \$178,312
Prin. Invest.	NASA Tech. Officer	CASE Category
H L DINERSTEIN	ARC/C D LAUGHLIN	11-Astronomy
	.... / H A HENDRIKS	

**NAG 3-1382 University of Texas - Austin 7701**  
 EXPERIMENTS AND THEORY ON INSTABILITY IN SURFACE-T  
 ENSION-DRIVEN BENARD CONVECTION (MARANGONI CONVEC

Period	Obligations	
12/02/1992-11/30/1993	FY93: \$99,224	TOTAL: \$99,224
Prin. Invest.	NASA Tech. Officer	CASE Category
H L SWINNEY	LERC/J A SALZMAN	19-Phys Sci, NEC

**NAG 2-419 University of Texas - Austin 7695**  
 HIGH-RESOLUTION FAR-INFRARED STUDIES OF PRE-MAIN-  
 SEQUENCE STARS WITH MOLECULAR OUTFLOWS

Period	Obligations	
10/01/1987-09/30/1994	FY93: \$29,839	TOTAL: \$199,081
Prin. Invest.	NASA Tech. Officer	CASE Category
D T JAFFEE	ARC/L C HAUGHNEY	11-Astronomy

**NAG 5-1021 University of Texas - Austin 7702**  
 LAGEAS SATELLITE LASER RANGING DATA ANALYSIS

Period	Obligations	
11/01/1987-02/28/1992	FY93: \$304	TOTAL: \$397,308
Prin. Invest.	NASA Tech. Officer	CASE Category
B D TAPLEY	GSFC/R KOLENKIEWICZ	32-Geological Sci

**NAG 2-420 University of Texas - Austin 7696**  
 HIGH RESOLUTION FAR-INFRARED STUDIES OF PRE-MAIN-  
 SEQUENCE STARS WITH MOLECULAR OUTFLOWS

Period	Obligations	
10/01/1986-09/30/1994	FY93: \$25,500	TOTAL: \$187,381
Prin. Invest.	NASA Tech. Officer	CASE Category
N J EVANS	ARC/L C HAUGHNEY	11-Astronomy

**NAG 5-1118 University of Texas - Austin 7703**  
 DETERMINATION OF CRUSTAL MOTIONS SATELLITE LASER  
 RANGING

Period	Obligations	
02/15/1989-12/31/1991	FY93: \$6,153	TOTAL: \$479,073
Prin. Invest.	NASA Tech. Officer	CASE Category
B D TAPLEY	GSFC/H FREY	39-Env Sci, NEC
B E SCHUTZ		

**NAG 2-748 University of Texas - Austin 7697**  
 A HIGH SPATIAL RESOLUTION STUDY OF FAR-IR CONTINU UM  
 EMISSION IN GALAXIES

Period	Obligations	
12/18/1991-09/30/1994	FY93: \$117,943	TOTAL: \$179,938
Prin. Invest.	NASA Tech. Officer	CASE Category
D F LESTER	ARC/C D LAUGHLIN	11-Astronomy
	.... / C M GILLESPIE JR	

**NAG 5-1603 University of Texas - Austin 7704**  
 HST - GTO

Period	Obligations	
05/20/1991-10/31/1993	FY93: \$1,660,450	TOTAL: \$3,826,990
Prin. Invest.	NASA Tech. Officer	CASE Category
W H JEFFERYS	GSFC/S SOBIESKI	11-Astronomy

**NAG 3-864 University of Texas - Austin 7698**  
 TURBULENCE MODELING FOR THE SIMULATION OF TRANSITI ON  
 IN WALL SHEAR FLOWS

Period	Obligations	
01/22/1988-02/18/1994	FY93: \$59,999	TOTAL: \$359,168
Prin. Invest.	NASA Tech. Officer	CASE Category
M E CRAWFORD	LERC/F F SIMON	49-Engr, NEC

**NAG 5-1616 University of Texas - Austin 7705**  
 STELLAR SPECTROSCOPY AND THE HUBBLE SPACE TELESCOP E

Period	Obligations	
05/24/1991-10/31/1993	FY93: \$113,000	TOTAL: \$262,954
Prin. Invest.	NASA Tech. Officer	CASE Category
D L LAMBERT	GSFC/S SOBIESKI	11-Astronomy

**NAG 3-1023 University of Texas - Austin 7699**  
 JOINT UNIV/NASA EXP AND COMP STUDY OF UNSTEADY SHOCK  
 WAVE TURB BOUNDARY LAYER INTERACTION

Period	Obligations	
03/22/1989-11/09/1993	FY93: \$23,507	TOTAL: \$123,537
Prin. Invest.	NASA Tech. Officer	CASE Category
D S DOLLING	LERC/W R HINGST	41-Aero Engr
	.... / A R PORRO	

**NAG 5-1700 University of Texas - Austin 7706**  
 IS THE X-RAY CONTINUUM FROM RADIO-LOUD QUASARS ORI  
 ENTATION-DEPENDENT?

Period	Obligations	
07/15/1991-01/31/1993	FY93: \$0	TOTAL: \$16,000
Prin. Invest.	NASA Tech. Officer	CASE Category
B J WILLS	GSFC/R PETRE	11-Astronomy

**NAG 3-1085 University of Texas - Austin 7700**  
 INVESTIGATION OF DIFFUSION BARRIERS IN TUNGSTEIN/N IBIUM  
 COMPOSITES

Period	Obligations	
10/26/1989-10/13/1992	FY93: \$0	TOTAL: \$71,756
Prin. Invest.	NASA Tech. Officer	CASE Category
J K TIEN	LERC/T L GROBSTEIN	47-Materials Engr
	.... / D W PETRASEK	

**NAG 5-1829 University of Texas - Austin 7707**  
 WFC AND NON-US POINTED OBSERVATIONS OF CATACLYSMIC  
 VARIABLES AND RELATED OBJECTS

Period	Obligations	
11/22/1991-11/30/1992	FY93: \$4,356	TOTAL: \$2,715
Prin. Invest.	NASA Tech. Officer	CASE Category
J H WOOD	GSFC/R PETRE	11-Astronomy

**NASA'S UNIVERSITY PROGRAM  
TEXAS (Continued)**

**NAG 5-1855 University of Texas - Austin 7708**  
HUBBLE SPACE TELESCOPE (HST) GUARANTEED TIME OBSERVATION

Period	Obligations	
01/02/1992-11/14/1993	FY93: \$85,000	TOTAL: \$133,000
Prin. Invest.	NASA Tech. Officer	CASE Category
L M TRAFTON	GSFC/A SMITH	11-Astronomy

**NAG 5-2217 University of Texas - Austin 7715**  
MUSCULOSKELETAL MODELS AND COMPUTATIONAL ALGORITHMS FOR THE NUMERICAL SIMULATION OF HUMAN MOTION...

Period	Obligations	
02/18/1993-02/28/1994	FY93: \$29,987	TOTAL: \$29,987
Prin. Invest.	NASA Tech. Officer	CASE Category
M G PANDY	GSFC/J R FISCHER	22-Computer Science

**NAG 5-1929 University of Texas - Austin 7709**  
ESTABLISHMENT OF A FLINN SITE IN WEST TEXAS

Period	Obligations	
03/04/1992-03/14/1994	FY93: \$40,000	TOTAL: \$79,998
Prin. Invest.	NASA Tech. Officer	CASE Category
C R WILSON	GSFC/B G BILLS	32-Geological Sci

**NAG 9-114 University of Texas - Austin 7716**  
HYPERVELOCITY PENETRATION STUDY COMPOSIT

Period	Obligations	
06/01/1985-04/01/1994	FY93: \$0	TOTAL: \$238,114
Prin. Invest.	NASA Tech. Officer	CASE Category
C H YEW	JSC/E L CHRISTIANSEN	47-Materials Engr
S KYRIAKIDES		

**NAG 5-1936 University of Texas - Austin 7710**  
TOWARD 10 (9) GPS GEODESY: VECTOR BASELINES, EARTH ROTATION AND REFERENCE FRAMES

Period	Obligations	
03/12/1992-03/14/1994	FY93: \$105,000	TOTAL: \$205,000
Prin. Invest.	NASA Tech. Officer	CASE Category
R E SCHUTZ	GSFC/B G BILLS	32-Geological Sci

**NAG 9-357 University of Texas - Austin 7717**  
LANCZOS VECTORS TO CONTROL DESIGN STRUCT

Period	Obligations	
06/01/1989-07/01/1992	FY93: \$4,728	TOTAL: \$135,313
Prin. Invest.	NASA Tech. Officer	CASE Category
R R CRAIG	JSC/J W SUNKEL	41-Aero Engr

**NAG 5-1939 University of Texas - Austin 7711**  
STUDY OF CRUSTAL DEFORMATION IN THE INDIAN-EURASIA N COLLISION ZONE

Period	Obligations	
03/12/1992-03/14/1994	FY93: \$88,000	TOTAL: \$138,000
Prin. Invest.	NASA Tech. Officer	CASE Category
B TAPLEY	GSFC/B G BILLS	32-Geological Sci

**NAG 9-397 University of Texas - Austin 7718**  
RESEARCH OF BIOSYNTHESIS OF CELLULOSE UNDER MICROGRAVITY CONDITIONS

Period	Obligations	
09/01/1989-01/01/1994	FY93: \$0	TOTAL: \$396,250
Prin. Invest.	NASA Tech. Officer	CASE Category
R M BROWN	JSC/G SPAULDING	51-Biological Sci
	....C F SAMS	

**NAG 5-1970 University of Texas - Austin 7712**  
PRECISION ORBIT DETERMINATION AND GEOPHYSICAL PARAMETER RECOVERY USING THE TRACKING AND DATA RELAY.

Period	Obligations	
04/15/1992-08/31/1993	FY93: \$0	TOTAL: \$93,885
Prin. Invest.	NASA Tech. Officer	CASE Category
B D TAPLEY	GSFC/J TELES	42-Astro Engr
	....R M BECKMAN	

**NAG 9-411 University of Texas - Austin 7719**  
ADVANCED DEVELOPMENT FOR SPACE ROBOTICS

Period	Obligations	
02/01/1990-07/01/1994	FY93: \$300,000	TOTAL: \$1,110,000
Prin. Invest.	NASA Tech. Officer	CASE Category
D TESAR	JSC/J REUTER	42-Astro Engr

**NAG 5-2139 University of Texas - Austin 7713**  
SYNOPTIC OBSERVATIONS OF GK PERSEI

Period	Obligations	
11/09/1992-11/14/1993	FY93: \$8,910	TOTAL: \$8,910
Prin. Invest.	NASA Tech. Officer	CASE Category
J C WHEELER	GSFC/D WEST	11-Astronomy

**NAG 9-426 University of Texas - Austin 7720**  
SURVIVABLE ALGORITHMS AND REDUNDANCY MANAGEMENT IN NASA'S DISTRIBUTED COMPUTING SYSTEMS

Period	Obligations	
05/01/1990-05/01/1993	FY93: \$0	TOTAL: \$50,000
Prin. Invest.	NASA Tech. Officer	CASE Category
M MALEK	JSC/J T EDGE	22-Computer Science

**NAG 5-2146 University of Texas - Austin 7714**  
LAGEOS SATELLITE LASER RANGING DATA ANALYSIS

Period	Obligations	
12/14/1992-12/14/1993	FY93: \$108,000	TOTAL: \$108,000
Prin. Invest.	NASA Tech. Officer	CASE Category
R J EANES	GSFC/J J DEGNAN	19-Phys Sci, NEC
M M WATKINS		

**NAG 9-444 University of Texas - Austin 7721**  
HYPERVELOCITY IMPACT SIMULATION FOR METEORITE AND DEBRIS SHIELD DESIGN

Period	Obligations	
06/01/1990-12/30/1991	FY93: \$0	TOTAL: \$58,043
Prin. Invest.	NASA Tech. Officer	CASE Category
E P FAHRENTHOLD	JSC/F L CHRISTIANSON	46-Mech Engr

**NASA'S UNIVERSITY PROGRAM**  
**TEXAS (Continued)**

**NAG 9-463 University of Texas - Austin 7722**  
 FRACTURE CONTROL ANALYSIS OF SPACECRAFT STRUCTURES  
 AND MECHANICAL SYSTEMS  
*Period Obligations*  
 09/01/1990-10/01/1993 FY93: \$0 TOTAL: \$89,973  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 E BECKER JSC/R G FORMAN 19-Phys Sci, NEC

**NAG 9-484 University of Texas - Austin 7723**  
 MATH MODEL MEASUREMENTS AND MEASUREMENTS OF DYNAMIC  
 REACTIONS AT INTERFACE POINTS  
*Period Obligations*  
 09/01/1990-11/01/1993 FY93: \$0 TOTAL: \$93,400  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R R CRAIG JSC/D A HAMILTON 41-Aero Engr  
 ....N E TENGLER

**NAG 9-512 University of Texas - Austin 7724**  
 DIAGNOSIS AND MODEL BUILDING FOR DYNAMIC SYSTEMS  
*Period Obligations*  
 04/16/1991-10/01/1992 FY93: \$25 TOTAL: \$53,495  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 B J KUIPERS JSC/J T MALIN 22-Computer Science

**NAG 9-526 University of Texas - Austin 7725**  
 NONLINEAR ADAPTIVE CONTROL OF EVOLUTIONARY  
 SPACECRAFT  
*Period Obligations*  
 05/23/1991-04/01/1993 FY93: \$0 TOTAL: \$119,500  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R H BISHOP JSC/J W SUNKEL 41-Aero Engr

**NAG 9-540 University of Texas - Austin 7726**  
 LUNAR RADIATION SHADING DEVICE DESIGN PROJECT  
*Period Obligations*  
 08/01/1991-06/01/1993 FY93: \$2,000 TOTAL: \$12,600  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S P NICHOLS JSC/M EWERT 46-Mech Engr

**NAG 9-588 University of Texas - Austin 7727**  
 MUSCULOSKELETAL MODELING OF HUMAN UPPER EXTREMITY  
*Period Obligations*  
 04/17/1992-06/01/1994 FY93: \$0 TOTAL: \$72,075  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R E BARR JSC/G KLUTE 56-Medical Sciences  
 L D ABRAHAM  
 M G PANDY

**NAG 9-661 University of Texas - Austin 7728**  
 DEV AND IMPLEMENTATION OF A FRAGMENTATION MODEL FOR  
 HYPERVELOCITY  
*Period Obligations*  
 02/09/1993-10/01/1993 FY93: \$50,000 TOTAL: \$50,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 C YEW JSC/E CHRISTIANSEN 47-Materials Engr

**NAG 9-665 University of Texas - Austin 7729**  
 DYNAMIC MODELING FOR FAILURE ANALYSIS  
*Period Obligations*  
 02/19/1993-01/01/1994 FY93: \$58,602 TOTAL: \$58,602  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 B KUIPERS JSC/J T MALIN 22-Computer Science

**NAG 9-666 University of Texas - Austin 7730**  
 ANIMATED COMPUTER VISION TECHNOLOGY FOR A SEMI-AUT  
 ONOMOUS ROVER  
*Period Obligations*  
 02/22/1993-07/01/1994 FY93: \$64,108 TOTAL: \$64,108  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A C BOVIK JSC/K BAKER 45-Elec Engr

**NAG 9-670 University of Texas - Austin 7731**  
 MATH MODEL VERIFICATION AND UPDATING BASED ON MEASUR  
 ED EXCITATIONS AND REACTIONS  
*Period Obligations*  
 02/25/1993-03/01/1994 FY93: \$53,000 TOTAL: \$53,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R R CRAIG JSC/D A HAMILTON 41-Aero Engr  
 ....N E TENGLER

**NAG 9-671 University of Texas - Austin 7732**  
 MUSCULOSKELETAL MODELING/OPTIMAL CNTRL OF THE HUMAN  
 UPPER EXTREMITY  
*Period Obligations*  
 03/05/1993-06/01/1994 FY93: \$64,876 TOTAL: \$64,876  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M G PANDY JSC/G K KLUTE 49-Engr, NEC  
 R E BARR

**NAG 9-675 University of Texas - Austin 7733**  
 SMOOTH PARTICLE HYDRODYNAMICS MODELING FOR ORBITAL  
 SHIELD DESIGN  
*Period Obligations*  
 04/01/1993-04/01/1994 FY93: \$59,966 TOTAL: \$59,966  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 E P FAHRENTHOLD JSC/E L CHRISTIANSEN 41-Aero Engr  
 C H YEW

**NAG 9-679 University of Texas - Austin 7734**  
 COOLING OF AIRLOCKS AND HYPERBARIC TREATMENT FACILIT  
 IES DURING RAPID PRESSURIZATION  
*Period Obligations*  
 03/24/1993-09/01/1994 FY93: \$60,738 TOTAL: \$60,738  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 K BALL JSC/J MARMOLEJO 46-Mech Engr  
 T BERGMAN

**NAGW 964 University of Texas - Austin 7735**  
 CENTER FOR EXCELLENCE FOR HYPERSONIC  
 TRAINING/RESEARCH  
*Period Obligations*  
 08/01/1986-10/31/1992 FY93: \$0 TOTAL: \$1,070,694  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D S DOLLING HQ/S M WANDER 13-Physics  
 I AMIRKABIAN ....R A GRAVES  
 M CRAWFORD

**NASA'S UNIVERSITY PROGRAM  
TEXAS (Continued)**

**NAGW 1477 University of Texas - Austin 7736**  
A CONTINUED PROGRAM OF PLANETARY STUDY AT THE UNIV  
*Period Obligations*  
12/12/1988-12/31/1993 FY93: \$261,010 TOTAL: \$1,810,847  
*Prin. Invest. NASA Tech. Officer CASE Category*  
H J SMITH HQ/J H RAHE 11-Astronomy

**NAGW 1519 University of Texas - Austin 7737**  
CELLULAR BASIS OF GRAVITY AND LIGHT-INDUCED GEOTROPISM  
*Period Obligations*  
11/21/1988-10/31/1993 FY93: \$65,000 TOTAL: \$312,673  
*Prin. Invest. NASA Tech. Officer CASE Category*  
S J ROUX HQ/T W HALSTEAD 51-Biological Sci

**NAGW 1537 University of Texas - Austin 7738**  
ASTROMETRIC SUPPORT FOR THE REDUCTION OF HIPPARCOS  
*Period Obligations*  
12/16/1988-09/30/1992 FY93: \$0 TOTAL: \$166,324  
*Prin. Invest. NASA Tech. Officer CASE Category*  
P D HEMENWAY HQ/G C CLAYTON 11-Astronomy

**NAGW 1807 University of Texas - Austin 7739**  
ASTROPHYSICS OF QUASARS  
*Period Obligations*  
06/28/1989-06/30/1993 FY93: \$0 TOTAL: \$90,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
G A SHIELDS HQ/G C CLAYTON 11-Astronomy

**NAGW 1834 University of Texas - Austin 7740**  
THE MONITORING OF CHANGES IN GLOBAL MEAN SEA LEVEL  
*Period Obligations*  
11/29/1989-06/30/1993 FY93: \$0 TOTAL: \$315,100  
*Prin. Invest. NASA Tech. Officer CASE Category*  
B D TAPLEY HQ/N B DOUGLAS 99-Multi-Discip  
R E SCHUTZ ....M BALTUCK  
C K SHUM

**NAGW 1959 University of Texas - Austin 7741**  
THE DETERMINATION OF CRUSTAL MOTIONS USING SATELLITE LASER RANGING TO LAGEOS-II AND LAGEOS-I  
*Period Obligations*  
05/29/1990-09/30/1993 FY93: \$233,100 TOTAL: \$582,100  
*Prin. Invest. NASA Tech. Officer CASE Category*  
B D TAPLEY HQ/M BALTUCK 31-Atmos Sci

**NAGW 2132 University of Texas - Austin 7742**  
PRECISION ORBIT DETERMINATION AND CALIBRATION SUPPORT FOR U.S. WORLD OCEAN CIRCULATION EXPERIMENT  
*Period Obligations*  
09/07/1990-03/31/1994 FY93: \$100,000 TOTAL: \$790,750  
*Prin. Invest. NASA Tech. Officer CASE Category*  
B TAPLEY HQ/G S LAGERLOEF 33-Oceanography  
....W S WILSON

**NAGW 2288 University of Texas - Austin 7743**  
PHYSICAL OBSERVATIONS OF COMETS THEIR COMPOSITION ORIGIN AND EVOLUTION  
*Period Obligations*  
06/13/1991-12/30/1993 FY93: \$70,003 TOTAL: \$223,315  
*Prin. Invest. NASA Tech. Officer CASE Category*  
A L COCHRAN HQ/J RAHE 11-Astronomy

**NAGW 2302 University of Texas - Austin 7744**  
A SEARCH FOR OTHER SOLAR SYSTEMS  
*Period Obligations*  
07/09/1991-10/31/1993 FY93: \$45,042 TOTAL: \$135,086  
*Prin. Invest. NASA Tech. Officer CASE Category*  
W D COCHRAN HQ/J A NUTH 19-Phys Sci, NEC

**NAGW 2314 University of Texas - Austin 7745**  
NAGW-2314/UNIV TEXAS @ AUSTIN/GROUND BASED STUDIES OF THE OUTER PLANETS  
*Period Obligations*  
06/13/1991-12/31/1993 FY93: \$65,000 TOTAL: \$192,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
L M TRAFTON HQ/J H RAHE 11-Astronomy

**NAGW 2323 University of Texas - Austin 7746**  
A MULTI-WAVELENGTH STUDY OF PROTOSTARS AND DISKS  
*Period Obligations*  
07/09/1991-10/31/1993 FY93: \$60,000 TOTAL: \$180,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
P M HARVEY HQ/J A NUTH 19-Phys Sci, NEC  
N J EVANS

**NAGW 2399 University of Texas - Austin 7747**  
THE EVOLUTION OF THE INTERGALACTIC MEDIUM AND THE FORMATION OF GALAXIES AND LARGE-SCALE STRUCTURE  
*Period Obligations*  
05/09/1991-12/31/1993 FY93: \$91,989 TOTAL: \$257,412  
*Prin. Invest. NASA Tech. Officer CASE Category*  
P R SHAPIRO HQ/G S KUTTER 11-Astronomy  
....G R RIEGLER

**NAGW 2418 University of Texas - Austin 7748**  
SELECTED DYNAMO PROBLEMS IN ASTROPHYSICS  
*Period Obligations*  
08/02/1991-12/31/1993 FY93: \$120,000 TOTAL: \$360,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
E T VISHNIAC HQ/G S KUTTER 11-Astronomy  
....G R RIEGLER

**NAGW 2465 University of Texas - Austin 7749**  
RADIAL VELOCITY DETECTION OF EXTRA-SOLAR PLANETARY SYSTEMS  
*Period Obligations*  
06/03/1991-12/31/1993 FY93: \$94,000 TOTAL: \$282,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
W D COCHRAN HQ/J RAHE 11-Astronomy

**NAGW 2587 University of Texas - Austin 7750**  
MEASURING THE LENSE-THIRING PRECESSION USING A SECOND LAGEOS SATELLITE  
*Period Obligations*  
07/17/1991-04/30/1992 FY93: \$0 TOTAL: \$90,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
B TAPLEY HQ/M S KAPLAN 11-Astronomy  
....P B ULRICH

**NASA'S UNIVERSITY PROGRAM  
TEXAS (Continued)**

**NAGW 2590 University of Texas - Austin 7751**  
NAGW-2590/UNIV TEXAS @ AUSTIN/COLLISIONLESS DYNAMICS OF  
MAGNETOSPHERIC SUBSTORM PHENOMENA  
*Period Obligations*  
07/16/1991-05/30/1994 FY93: \$67,000 TOTAL: \$198,776  
*Prin. Invest. NASA Tech. Officer CASE Category*  
W HORTON HQ/M M MELLOTT 13-Physics  
....J D BOHLIN

**NAGW 2615 University of Texas - Austin 7752**  
EARTH SYSTEM DYNAMICS; THE DETERMINATION AND INTER  
PRETATION OF THE GLOBAL ANGULAR MOMENTUM BUDGET  
*Period Obligations*  
07/24/1991-12/31/1993 FY93: \$931,000 TOTAL: \$2,132,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
B TAPLEY HQ/A J ANDERSON 39-Env Sci, NEC  
....W S WILSON

**NAGW 2717 University of Texas - Austin 7753**  
PRECISION GPS EPHEMERIDES AND BASELINES  
*Period Obligations*  
08/30/1991-12/31/1991 FY93: \$0 TOTAL: \$174,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
B E SCHUTZ HQ/M BALTUCK 32-Geological Sci  
....B J MALCOLM

**NAGW 2815 University of Texas - Austin 7754**  
DISTURBANCE, SPATIAL HETEROGENEITY, AND BIOTIC DIVERSITY  
IN ARID AUSTRALIA  
*Period Obligations*  
01/17/1992-11/30/1993 FY93: \$100,472 TOTAL: \$200,558  
*Prin. Invest. NASA Tech. Officer CASE Category*  
E R PIANKA HQ/J D RUMMEL 54-Env Biology

**NAGW 2905 University of Texas - Austin 7755**  
THEORETICAL INFRARED SPECTRA OF SUPERNOVAE  
*Period Obligations*  
02/20/1992-11/30/1993 FY93: \$54,500 TOTAL: \$118,560  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J C WHEELER HQ/L J CAROFF 11-Astronomy

**NAGW 2941 University of Texas - Austin 7756**  
THE STUDY OF EFFECTS OF THE VARIATIONS IN THE EARTH'S  
GRAVITY FIELD ON GEODETIC SATELLITES  
*Period Obligations*  
02/28/1992-12/31/1993 FY93: \$64,870 TOTAL: \$127,675  
*Prin. Invest. NASA Tech. Officer CASE Category*  
C K SHUM HQ/R E MURPHY 13-Physics  
....D M BUTLER

**NAGW 2970 University of Texas - Austin 7757**  
INVESTIGATING RELATIVITY PARAMETERS WITH LUNAR LASER  
RANGING DATA  
*Period Obligations*  
03/12/1992-12/31/1993 FY93: \$99,789 TOTAL: \$198,980  
*Prin. Invest. NASA Tech. Officer CASE Category*  
P J SHELUS HQ/R STACHNIK 41-Aero Engr

**NAGW 2975 University of Texas - Austin 7758**  
BLACK HOLES IN BINARY STELLAR SYSTEMS  
*Period Obligations*  
03/06/1992-01/31/1994 FY93: \$30,000 TOTAL: \$60,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J WHEELER HQ/L J KALUZIENSKI 11-Astronomy  
....A N BUNNER

**NAGW 3111 University of Texas - Austin 7759**  
ASTROMETRIC SUPPORT FOR THE REDUCTION OF HIPPARCOS  
COORDINATE SYSTEM DATA  
*Period Obligations*  
06/23/1992-06/30/1993 FY93: \$0 TOTAL: \$69,690  
*Prin. Invest. NASA Tech. Officer CASE Category*  
P D HEMENWAY HQ/R V STACHNIK 11-Astronomy

**NAGW 3119 University of Texas - Austin 7760**  
NAGW-3119/UNIV TEXAS/DETERMINATION OF THE EARTH'S  
GRAVITATIONAL POTENTIAL MODEL  
*Period Obligations*  
06/26/1992-06/30/1994 FY93: \$50,000 TOTAL: \$100,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
B D TAPLEY HQ/R E MURPHY 32-Geological Sci  
....D M BUTLER

**NAGW 3131 University of Texas - Austin 7761**  
NAGW-3131/UNIV TEXAS/INVESTIGATION OF HIGH FREQUENCY  
VARIATIONS IN EARTH ORIENTATION AND ROTATION  
*Period Obligations*  
07/02/1992-12/31/1993 FY93: \$62,000 TOTAL: \$122,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
C R WILSON HQ/R E MURPHY 39-Env Sci, NEC  
....D M BUTLER

**NAGW 3246 University of Texas - Austin 7762**  
SCIENCE IN THE STRATOSPHERE: A GUEST PLAN FOR THE KAO  
*Period Obligations*  
11/09/1992-07/31/1993 FY93: \$5,000 TOTAL: \$5,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D F LESTER HQ/L S LAPIANA 11-Astronomy  
....G P NEWTON

**NAGW 3306 University of Texas - Austin 7763**  
NAGW-3306/UNIV TEXAS @ AUSTIN/MONITORING OF THE MARTIAN  
H2O ABUNDANCE IN 1992-93  
*Period Obligations*  
12/31/1992-12/31/1993 FY93: \$29,211 TOTAL: \$29,211  
*Prin. Invest. NASA Tech. Officer CASE Category*  
E S BARKER HQ/H C BRINTON 11-Astronomy

**NAGW 3505 University of Texas - Austin 7764**  
NAGW-2505/UNIV TEXAS AUSTIN/VENUSIAN GRAVITATIONAL FIELD  
AND TOPOGRAPH USING PIONEER VENUS ORBITER  
*Period Obligations*  
04/16/1993-03/31/1994 FY93: \$35,000 TOTAL: \$35,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
C K SHUM HQ/J T BERGSTRAHLH 32-Geological Sci



**NASA'S UNIVERSITY PROGRAM**  
**TEXAS (Continued)**

**NAGW 3743 University of Texas - Austin 7765**  
 NASA SAR AUSTRALIAN OVERFLIGHT PROJECT  
*Period Obligations*  
 09/17/1993-06/30/1994 FY93: \$27,267 TOTAL: \$27,267  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M M CRAWFORD HQ/D E WICKLAND 39-Env Sci, NEC  
 B TAPLEY ....A C JANETOS

**NAS 3-26403 University of Texas - Austin 7766**  
 LAND-MOBILE-SATELLITE MEASUREMENTS IN CENTRAL MARY LAND  
 AND ALASKA USING ACTS: PASSIVE ANTENNA TRACKIN  
*Period Obligations*  
 04/15/1993-01/15/1995 FY93: \$83,874 TOTAL: \$83,874  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 W J VOGEL LERC/R J GUNDERMAN 99-Multi-Discip

**NAS 5-30942 University of Texas - Austin 7767**  
 MANAGEMENT AND OPERATION OF THE MCDONALD LASER  
 RANGING STATION  
*Period Obligations*  
 03/01/1991-02/28/1994 FY93: \$500,000 TOTAL: \$1,455,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 P J SHELUS GSFC/J F MCGARRY 32-Geological Sci

**NAS 5-33021 University of Texas - Austin 7768**  
 EOS INTERDISCIPLINARY STUDY FOR THE GEODYNAMICS LASER  
*Period Obligations*  
 12/12/1989-02/14/1993 FY93: \$0 TOTAL: \$305,200  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 B SCHUTZ GSFC/G SOFFE 39-Env Sci, NEC

**NCA 2-532 University of Texas - Austin 7769**  
 MUSCULOSKEETAL COMPUTER MODELING OF HUMAN MOTION IN  
 SPACE  
*Period Obligations*  
 06/12/1990-07/31/1992 FY93: \$0 TOTAL: \$52,700  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M PANDY ARC/R T WHALEN 56-Medical Sciences

**NCC 2-286 University of Texas - Austin 7770**  
 CREW SELECTION, TRAINING, AND PERFORMANCE  
*Period Obligations*  
 11/01/1987-12/31/1993 FY93: \$150,000 TOTAL: \$1,950,726  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R L HELMREICH ARC/B G KANKI 62-Social Aspects  
 ....T R CHIDESTER

**NCC 2-629 University of Texas - Austin 7771**  
 UTILITY AND INCOMPLETE THEORIES: ADDRESSING TWO  
 IMPORTANT PROBLEMS IN EXPLANATION-BASED LEARNING  
*Period Obligations*  
 07/31/1989-08/31/1992 FY93: \$0 TOTAL: \$224,886  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R MOONEY ARC/P E FRIEDLAND 22-Computer Science  
 ....P D LAIRD

**NCC 2-760 University of Texas - Austin 7772**  
 SELF-CALIBRATING MODELS FOR DYNAMIC MONITORING AND  
 DIAGNOSIS  
*Period Obligations*  
 05/20/1992-11/30/1993 FY93: \$223,334 TOTAL: \$340,001  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 B J KUIPERS ARC/P E FRIEDLAND 22-Computer Science  
 ....D E THOMPSON

**NCC 2-787 University of Texas - Austin 7773**  
 DEVELOPMENT AND IMPLEMENTATION OF NASA TECHNOLOGY  
 COMMERCIALIZATION FIELD CENTERS (NTCC)  
*Period Obligations*  
 04/21/1993-10/31/1993 FY93: \$400,000 TOTAL: \$400,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 G KOZMETSKY ARC/G S LEE 99-Multi-Discip  
 ....V L PETERSON

**NCC 3-273 University of Texas - Austin 7774**  
 ADVANCED STUDIES OF ELECTROMAGNETIC SCATTERING  
*Period Obligations*  
 06/23/1992-04/15/1994 FY93: \$40,000 TOTAL: \$60,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 H LING LERC/A J ZAMAN 45-Elec Engr

**NCC 9-22 University of Texas - Austin 7775**  
 DEVELOPEMENT IMPLEMENTATION OF A NASA BASED TECH  
 COMMERCIALIZATION  
*Period Obligations*  
 02/04/1993-02/04/1994 FY93: \$400,000 TOTAL: \$400,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 G KOZMETSKY JSC/W J HUFFSTETLER 99-Multi-Discip

**NGT 00-030-001 University of Texas - Austin 7776**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
 10/03/1990-08/31/1993 FY93: \$0 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 V NUTH HQ/G ASRAR 39-Env Sci, NEC

**NGT 00-030-129 University of Texas - Austin 7777**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
 11/09/1992-08/31/1994 FY93: \$44,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A SLUYTER HQ/G ASRAR 99-Multi-Discip  
 ....G M BUTLER

**NGT 00-030-158 University of Texas - Austin 7778**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
 11/09/1992-08/31/1994 FY93: \$44,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 C PARMESEAN HQ/G ASRAR 39-Env Sci, NEC  
 ....D E WICKLAND

**NGT 00-030-194 University of Texas - Austin 7779**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
 08/26/1993-08/31/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 K W BUTZER HQ/G ASRAR 31-Atmos Sci  
 ....D M BUTLER

**NASA'S UNIVERSITY PROGRAM  
TEXAS (Continued)**

**NGT 00-040-003 University of Texas - Austin 7780**  
NATIONAL SPACE GRANT COLLEGE AND FELLOWSHIP PROGRAM  
*Period Obligations*  
10/10/1989-01/31/1994 FY93: \$739,970 TOTAL: \$1,844,970  
*Prin. Invest. NASA Tech. Officer CASE Category*  
B D TAPLEY HQ/E T SCHWARTZ 99-Multi-Discip

**NGT 00-050-732 University of Texas - Austin 7788**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
09/19/1991-08/31/1994 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R MOONEY HQ/F C OWENS 22-Computer Science

**NGT 00-050-422 University of Texas - Austin 7781**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
08/10/1989-06/30/1992 FY93: \$0 TOTAL: \$62,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
B E SCHUTZ HQ/F C OWENS 22-Computer Science

**NGT 00-050-760 University of Texas - Austin 7789**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
12/19/1991-01/31/1993 FY93: \$10,000 TOTAL: \$32,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
B D TAPLEY GSFC/G SOFFEN 42-Astro Engr

**NGT 00-050-468 University of Texas - Austin 7782**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
08/14/1989-06/30/1993 FY93: \$0 TOTAL: \$62,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D E WINGET HQ/F C OWENS 11-Astronomy

**NGT 00-050-849 University of Texas - Austin 7790**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
09/04/1991-08/31/1994 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
P R SHAPIRO HQ/F C OWENS 11-Astronomy

**NGT 00-050-476 University of Texas - Austin 7783**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
08/01/1989-12/31/1991 FY93: \$0 TOTAL: \$40,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D JAFFE HQ/F C OWENS 11-Astronomy

**NGT 00-050-853 University of Texas - Austin 7791**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
08/12/1991-08/31/1994 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J C WHEELER HQ/F C OWENS 13-Physics

**NGT 00-050-573 University of Texas - Austin 7784**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
09/13/1990-08/31/1993 FY93: \$0 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
W T FOWLER HQ/F C OWENS 41-Aero Engr

**NGT 00-050-869 University of Texas - Austin 7792**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
07/07/1992-06/30/1994 FY93: \$22,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
T KODADEK HQ/J K ALEXANDER 12-Chemistry

**NGT 00-050-594 University of Texas - Austin 7785**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
09/05/1990-08/31/1993 FY93: \$0 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R F SIMMONS HQ/F C OWENS 22-Computer Science

**NGT 00-050-998 University of Texas - Austin 7793**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
08/28/1992-08/31/1994 FY93: \$22,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D T JAFFE HQ/J K ALEXANDER 11-Astronomy

**NGT 00-050-620 University of Texas - Austin 7786**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
07/26/1990-06/30/1993 FY93: \$0 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J C WHEELER HQ/F C OWENS 11-Astronomy

**NGT 00-051-025 University of Texas - Austin 7794**  
GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
07/14/1993-08/31/1994 FY93: \$21,710 TOTAL: \$21,710  
*Prin. Invest. NASA Tech. Officer CASE Category*  
M G PANDY ARC/M MOORE 46-Mech Engr

**NGT 00-050-659 University of Texas - Austin 7787**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
09/13/1990-08/31/1993 FY93: \$0 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
G A SHIELDS HQ/F C OWENS 11-Astronomy

**NGT 00-051-065 University of Texas - Austin 7795**  
GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
06/02/1993-06/30/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
S ROUX HQ/R WHITE 55-Agriculture Sci

**NASA'S UNIVERSITY PROGRAM**  
**TEXAS (Continued)**

**NGT 00-051-138 University of Texas - Austin 7796**  
 GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 07/29/1993-08/31/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 C SEDAN HQ/D HOLLAND 11-Astronomy

**NGT 00-070-252 University of Texas - Austin 7803**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
 MINORITY FOCUS PROGRAM  
*Period Obligations*  
 06/25/1992-06/30/1994 FY93: \$22,000 TOTAL: \$42,200  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R E BARR JSC/S GOLDSTEIN 46-Mech Engr

**NGT 00-051-151 University of Texas - Austin 7797**  
 GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 08/03/1993-08/31/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 H L SWINNEY HQ/B CARPENTER 13-Physics

**NGT 00-070-262 University of Texas - Austin 7804**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
 MINORITY FOCUS PROGRAM  
*Period Obligations*  
 08/18/1992-08/31/1994 FY93: \$22,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 B D TAPLEY JPL/H ASHKENAS 41-Aero Engr

**NGT 00-070-032 University of Texas - Austin 7798**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
 MINORITY FOCUS PROGRAM  
*Period Obligations*  
 10/05/1992-05/31/1993 FY93: \$0 TOTAL: \$98,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 P VARGHESE HQ/F C OWENS 41-Aero Engr

**NGT 00-070-270 University of Texas - Austin 7805**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
 MINORITY FOCUS PROGRAM  
*Period Obligations*  
 07/09/1992-06/30/1993 FY93: \$0 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D S DOLLING LARC/E J PRIOR 41-Aero Engr

**NGT 00-070-111 University of Texas - Austin 7799**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
 MINORITY FOCUS PROGRAM  
*Period Obligations*  
 01/17/1989-01/15/1994 FY93: \$22,000 TOTAL: \$102,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 G F CAREY HQ/R J HAYDUK 49-Engr, NEC

**NGT 00-070-338 University of Texas - Austin 7806**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
 MINORITY FOCUS PROGRAM  
*Period Obligations*  
 06/29/1993-06/30/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J CAMBELL HQ/D K RUSSELL 45-Elec Engr

**NGT 00-070-184 University of Texas - Austin 7800**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
 MINORITY FOCUS PROGRAM  
*Period Obligations*  
 08/15/1990-05/31/1992 FY93: \$0 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R R CRAIG HQ/F C OWENS 41-Aero Engr

**NGT 00-090-097 University of Texas - Austin 7807**  
 UNDERGRADUATE STUDENT RESEARCHERS PROGRAM (UMF)  
*Period Obligations*  
 09/24/1992-08/14/1994 FY93: \$18,000 TOTAL: \$18,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 E ARMENDARIZ HQ/D K RUSSELL 99-Multi-Discip

**NGT 00-070-212 University of Texas - Austin 7801**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
 MINORITY FOCUS PROGRAM  
*Period Obligations*  
 06/04/1991-06/30/1993 FY93: \$0 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R R CRAIG HQ/F C OWENS 42-Astro Engr

**NGT 00-090-216 University of Texas - Austin 7808**  
 UNDERGRADUATE STUDENT RESEARCHERS (UMF) PROGRAM  
*Period Obligations*  
 09/23/1993-08/14/1994 FY93: \$12,000 TOTAL: \$12,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S KONRADI HQ/D K RUSSELL 99-Multi-Discip

**NGT 00-070-222 University of Texas - Austin 7802**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
 MINORITY FOCUS PROGRAM  
*Period Obligations*  
 12/01/1991-08/31/1994 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D TESAR HQ/F C OWENS 46-Mech Engr

**NAG 5-305 University of Texas - Dallas 7809**  
 RETORDING POTENTIAL ANALYZER RESEARCH  
*Period Obligations*  
 04/01/1983-12/31/1992 FY93: \$0 TOTAL: \$1,389,568  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 W HANSON GSFC/G D BULLOCK 19-Phys Sci, NEC  
 ....R A HOFFMAN

**NAG 5-306 University of Texas - Dallas 7810**  
 ION DRIFT METER RESEARCH  
*Period Obligations*  
 04/01/1983-12/31/1992 FY93: \$0 TOTAL: \$1,634,584  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R A HEELIS GSFC/G D BULLOCK 19-Phys Sci, NEC  
 ....R A HOFFMAN

**NASA'S UNIVERSITY PROGRAM  
TEXAS (Continued)**

**NAG 5-1641 University of Texas - Dallas 7811**  
SATELLITE DATA ARCHIVING  
*Period Obligations*  
06/24/1991-08/14/1994 FY93: \$17,990 TOTAL: \$203,930  
*Prin. Invest. NASA Tech. Officer CASE Category*  
W B HANSON GSFC/T L AGGSON 19-Phys Sci, NEC  
...../R A HOFFMAN

**NAG 9-577 University of Texas - Dallas 7812**  
LUNAR SOUNDER DATA DIGITIZATION PROCESSING AND GEOLOGIC ANALYSIS PROGRAM  
*Period Obligations*  
03/24/1992-04/01/1993 FY93: \$233 TOTAL: \$51,298  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J L CARTER JSC/D S MCKAY 32-Geological Sci

**NAGW 957 University of Texas - Dallas 7813**  
NORMAL COMPONENT OF THE MAGNETIC FIELD  
*Period Obligations*  
09/01/1986-12/31/1991 FY93: \$0 TOTAL: \$144,577  
*Prin. Invest. NASA Tech. Officer CASE Category*  
W J HEIKKILA HQ/M M MELLOTT 13-Physics  
...../T E EASTMAN

**NAGW 1665 University of Texas - Dallas 7814**  
INTERDISCIPLINARY STUDY OF PLANETARY ATMOSPHERES  
*Period Obligations*  
02/10/1989-11/30/1993 FY93: \$74,988 TOTAL: \$357,097  
*Prin. Invest. NASA Tech. Officer CASE Category*  
F S JOHNSON HQ/J T BERGSTRALH 31-Atmos Sci

**NAGW 2371 University of Texas - Dallas 7815**  
DEVELOPMENT OF A MULTIPACTING DISCHARGE IONIZER FOR LUNAR NEUTRAL MASS SPECTROMETRY  
*Period Obligations*  
06/25/1991-06/30/1992 FY93: \$0 TOTAL: \$59,962  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R R HODGES HQ/W L QUAIDE 19-Phys Sci, NEC

**NAGW 2432 University of Texas - Dallas 7816**  
INFLUENCE OF IONOSPHERE/ENOSPHERE COUPLING ON THE DIFFERENTIAL ESCAPE OF DEUTERIUM AND HYDROGEN  
*Period Obligations*  
04/11/1991-04/30/1993 FY93: \$0 TOTAL: \$135,477  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R R HODGES HQ/M M MELLOTT 13-Physics  
...../J D BOHLIN

**NAGW 2490 University of Texas - Dallas 7817**  
INTERACTIONS OF GAS PHASE VOLATILES WITH THE LUNAR REGOLITH  
*Period Obligations*  
06/07/1991-12/31/1992 FY93: \$0 TOTAL: \$100,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R R HODGES HQ/J T BERGSTRALH 11-Astronomy

**NAGW 2534 University of Texas - Dallas 7818**  
NAGW-2534/UNIV TEXAS @ DALLAS/A SATELLITE ANEMOMETER  
*Period Obligations*  
06/03/1991-04/30/1994 FY93: \$39,000 TOTAL: \$191,050  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R R HODGES HQ/W L QUAIDE 19-Phys Sci, NEC  
...../J D BOHLIN

**NAGW 2535 University of Texas - Dallas 7819**  
NAGW-2535/UNIV TEXAS @ DALLAS/MARS '94 CO-INVESTIGATOR PROGRAM: STUDY OF THE DYNAMICS OF THE MARTIAN  
*Period Obligations*  
06/03/1991-04/30/1994 FY93: \$55,000 TOTAL: \$149,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R R HODGES HQ/W L QUAIDE 19-Phys Sci, NEC

**NAGW 3444 University of Texas - Dallas 7820**  
STUDY OF THE PIONEER VENUS SOUNDER PROBE NEUTRAL MASS  
*Period Obligations*  
03/15/1993-03/14/1994 FY93: \$29,926 TOTAL: \$29,926  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R R HODGES HQ/J T BERGSTRALH 31-Atmos Sci

**NAGW 3466 University of Texas - Dallas 7821**  
STUDY OF POLAR IONOSPHERIC FLOWS DURING TIMES OF TOTAL SOLAR MINIMUM OCCURRENCES  
*Period Obligations*  
04/09/1993-02/28/1994 FY93: \$51,615 TOTAL: \$51,615  
*Prin. Invest. NASA Tech. Officer CASE Category*  
M R HAIRSTON HQ/M M MELLOTT 13-Physics  
...../G L WITHBROE

**NAS 1-17399 University of Texas - Dallas 7822**  
SUPPORT ACTIVITIES TO MAINTAIN SUMS FLIGHT READINESS  
*Period Obligations*  
07/15/1983-08/31/1992 FY93: \$0 TOTAL: \$884,998  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J H HOFFMAN LARC/R C BLANCHARD 19-Phys Sci, NEC  
...../R J DUCKETT

**NAS 8-33827 University of Texas - Dallas 7823**  
RESEARCH STUDY MEASUREMENT OF VISIBLE AND UV EMISSIONS FROM ENERGETIC NEUTRAL ATOM PRECIPITATION  
*Period Obligations*  
08/12/1980-01/31/1994 FY93: \$84,852 TOTAL: \$550,727  
*Prin. Invest. NASA Tech. Officer CASE Category*  
B A TINSLEY MSFC/J E JOHNSON 31-Atmos Sci  
D P ROHRBAUGH ...../R ISE

**NAS 8-36954 University of Texas - Dallas 7824**  
STUDY ENTITLED 'COMETARY RETARDING ION MASS SPECTROMETER DEVELOPMENT.'  
*Period Obligations*  
07/28/1987-09/30/1992 FY93: \$0 TOTAL: \$970,732  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R A HEELIS MSFC/T E MOORE 11-Astronomy  
W B HANSON ...../S A FEILDS

**NAS 8-39692 University of Texas - Dallas 7825**  
MINIATURE MAGNETIC MASS ANALYZER  
*Period Obligations*  
11/10/1992-11/09/1995 FY93: \$75,044 TOTAL: \$75,044  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J H HOFFMAN MSFC/C J POLLOCK 39-Env Sci, NEC  
...../T E MOORE

**NASA'S UNIVERSITY PROGRAM**  
**TEXAS (Continued)**

**NAS 9-18736 University of Texas - Dallas 7826**  
 SPACE LIFE SCIENCE  
*Period* *Obligations*  
 07/06/1992-10/17/1993 FY93: \$25,557 TOTAL: \$269,257  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 J BUCKEY JSC/K NEWKIRK 59-Life Sci, NEC

**NAS 8-38662 University of Texas - El Paso 7833**  
 WELDING GAS IMPURITY MONITOR DEVELOPMENT  
*Period* *Obligations*  
 08/13/1990-08/12/1992 FY93: \$0 TOTAL: \$100,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 J C MCCLURE MSFC/A C NUNES 47-Materials Engr  
 ....C S JONES

**NAG 2-670 University of Texas - El Paso 7827**  
 INTERDISCIPLINARY INVESTIGATIONS IN SUPPORT OF PROJECT DI-MOD  
*Period* *Obligations*  
 08/24/1990-08/31/1993 FY93: \$51,171 TOTAL: \$176,721  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 S A STARKS ARC/J S SALUTE 54-Env Biology  
 C A HOWARD  
 L F MAYBERRY

**NAS 8-39602 University of Texas - El Paso 7834**  
 ASYMMETRIC GAS FLOW AND UNDERCUTTING DURING VARIABLE POLARITY PLASMA ARC WELDING  
*Period* *Obligations*  
 09/10/1992-09/09/1994 FY93: \$72,839 TOTAL: \$72,839  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 J C MCCLURE MSFC/A C NUNES 47-Materials Engr  
 ....C K RUSSELL

**NAG 3-1380 University of Texas - El Paso 7828**  
 IMAGE COMPRESSION BASED ON INCOMPLETE AND OVERCOMPLETE SUBBAND DECOMPOSITIONS  
*Period* *Obligations*  
 11/10/1992-11/08/1993 FY93: \$74,746 TOTAL: \$74,746  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 S D CABRERA LERC/D R GLOVER 29-Math/Computer, NEC

**NGT 00-070-112 University of Texas - El Paso 7835**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED MINORITY FOCUS PROGRAM  
*Period* *Obligations*  
 01/11/1989-12/31/1991 FY93: \$1,652 TOTAL: \$38,348  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 W L CRAVER HQ/F C OWENS 46-Mech Engr

**NAG 9-479 University of Texas - El Paso 7829**  
 MULTIPLE SENSOR INTEGRATION FOR STATE AND TREND MONITORS  
*Period* *Obligations*  
 10/01/1990-09/01/1993 FY93: \$0 TOTAL: \$63,773  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 S A STARKS JSC/D LAWLER 22-Computer Science  
 ....K E HENDERSON

**NGT 00-070-215 University of Texas - El Paso 7836**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED MINORITY FOCUS PROGRAM  
*Period* *Obligations*  
 06/07/1991-06/30/1993 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 J C MCCLURE HQ/F C OWENS 46-Mech Engr

**NAG 9-481 University of Texas - El Paso 7830**  
 CHARACTERIZATION OF MATERIALS INTERACTION AND DEGRADATION IN SPACE  
*Period* *Obligations*  
 09/01/1990-09/01/1993 FY93: \$0 TOTAL: \$114,252  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 L E MURR JSC/S L KOONTZ 47-Materials Engr  
 ....K E HENDERSON

**NGT 00-070-245 University of Texas - El Paso 7837**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED MINORITY FOCUS PROGRAM  
*Period* *Obligations*  
 07/24/1991-06/30/1994 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 J MCCLURE HQ/F C OWENS 47-Materials Engr  
 R ARROWOOD

**NAG 9-482 University of Texas - El Paso 7831**  
 UNCERTAINTY REASONING IN EXPERT SYSTEMS  
*Period* *Obligations*  
 09/01/1990-04/01/1993 FY93: \$0 TOTAL: \$62,326  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 V KREINOVICH JSC/R N LEA 22-Computer Science  
 ....K E HENDERSON

**NGT 00-070-246 University of Texas - El Paso 7838**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED MINORITY FOCUS PROGRAM  
*Period* *Obligations*  
 08/30/1991-09/25/1993 FY93: \$0 TOTAL: \$44,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 J C MCCLURE HQ/F C OWENS 47-Materials Engr

**NAG 9-483 University of Texas - El Paso 7832**  
 RELIABILITY OF DAMAGED SPACE STRUCTURES FOR VIBRATION MEASUREMENTS  
*Period* *Obligations*  
 10/01/1990-09/01/1993 FY93: \$0 TOTAL: \$113,500  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 C M FERREGUT JSC/R A ROCHA 46-Mech Engr  
 R O OSEQUEDA ....K E HENDERSON

**NGT 00-070-297 University of Texas - El Paso 7839**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED MINORITY FOCUS PROGRAM  
*Period* *Obligations*  
 08/04/1992-06/30/1994 FY93: \$22,000 TOTAL: \$44,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 J C MCCLURE MSFC/F SIX 47-Materials Engr

**NASA'S UNIVERSITY PROGRAM**  
**TEXAS (Continued)**

**NGT 00-070-343 University of Texas - El Paso 7840**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
 MINORITY FOCUS PROGRAM  

Period	Obligations	
07/06/1993-06/30/1994	FY93: \$21,400	TOTAL: \$21,400
Prin. Invest.	NASA Tech. Officer	CASE Category
L E MURR	HQ/D K RUSSELL	47-Materials Engr

**NGT 00-070-350 University of Texas - El Paso 7841**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
 MINORITY FOCUS PROGRAM  

Period	Obligations	
08/04/1993-07/31/1994	FY93: \$22,000	TOTAL: \$22,000
Prin. Invest.	NASA Tech. Officer	CASE Category
K MARSAGLIA	HQ/D K RUSSELL	32-Geological Sci

**NGT 00-070-354 University of Texas - El Paso 7842**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
 MINORITY FOCUS PROGRAM  

Period	Obligations	
09/02/1993-08/31/1994	FY93: \$22,000	TOTAL: \$22,000
Prin. Invest.	NASA Tech. Officer	CASE Category
C FERREGUT	HQ/D K RUSSELL	46-Mech Engr

**NGT 00-090-044 University of Texas - El Paso 7843**  
 MINORITY UNDER GRADUATE RESEARCHERS PROGRAM  

Period	Obligations	
08/22/1991-08/31/1993	FY93: \$21,440	TOTAL: \$67,104
Prin. Invest.	NASA Tech. Officer	CASE Category
A LOPEZ	HQ/B WHITE	99-Multi-Discip

**NGT 00-090-125 University of Texas - El Paso 7844**  
 GRADUATE STUDENT RESEARCHERS PROGRAM/UMF  

Period	Obligations	
11/27/1992-08/14/1993	FY93: \$12,000	TOTAL: \$12,000
Prin. Invest.	NASA Tech. Officer	CASE Category
A LOPEZ	HQ/D K RUSSELL	99-Multi-Discip

**NAG 5-2210 University of Texas at Brownsville 7845**  
 EXPLOITING STRUCTURE: INTRODUCTION AND MOTIVATION  

Period	Obligations	
02/18/1993-02/28/1994	FY93: \$56,510	TOTAL: \$56,510
Prin. Invest.	NASA Tech. Officer	CASE Category
Z L XU	GSFC/G E MOSIER	41-Aero Engr

**NAG 2-819 University of Texas at San Antonio 7846**  
 MONOCLONAL ANTIBODIES DIRECTED AGAINST SURFACE MOLECULES OF MULTICELL SPHEROIDS  

Period	Obligations	
12/15/1992-12/10/1993	FY93: \$70,688	TOTAL: \$70,688
Prin. Invest.	NASA Tech. Officer	CASE Category
A O MARTINEZ	ARC/R A GRAYMES	51-Biological Sci

**NAG 3-867 University of Texas at San Antonio 7847**  
 DEVELOPMENT OF ADV METHODOLOGIES FOR PROBABILISTIC  
 RELATIONSHIPS OF MATERIALS  

Period	Obligations	
01/19/1988-09/30/1993	FY93: \$45,000	TOTAL: \$221,416
Prin. Invest.	NASA Tech. Officer	CASE Category
L BOYCE	LERC/C C CHAMIS	41-Aero Engr
	....R H JOHNS	

**NAG 9-554 University of Texas at San Antonio 7848**  
 FUNDAMENTAL SKILLS INTELLIGENT TUTORING SYSTEMS  

Period	Obligations	
09/19/1991-09/30/1993	FY93: \$0	TOTAL: \$233,344
Prin. Invest.	NASA Tech. Officer	CASE Category
W ALTER	JSC/J D ATKINSON	29-Math/Computer, NEC
R DIEM		

**NAGW 3573 University of Texas at San Antonio 7849**  
 TEXAS PREFRESHMAN ENGINEERING PROGRAM  

Period	Obligations	
06/03/1993-06/30/1994	FY93: \$74,553	TOTAL: \$74,553
Prin. Invest.	NASA Tech. Officer	CASE Category
M BERRIOZABAL	HQ/B WHITE	49-Engr, NEC

**NCC 2-724 University of Texas at San Antonio 7850**  
 DURABILITY OF COMPOSITES: THE FURTHER DEVELOPMENT OF  
 CONSTITUTIVE AND FAILURE LAWS  

Period	Obligations	
07/03/1991-05/31/1993	FY93: \$0	TOTAL: \$227,697
Prin. Invest.	NASA Tech. Officer	CASE Category
H F BRINSON	ARC/H G NELSON	47-Materials Engr
C HIEL		

**NGT 00-090-047 University of Texas at San Antonio 7851**  
 UNDERGRADUATE STUDENT RESEARCHERS PROGRAM  

Period	Obligations	
08/22/1991-08/31/1994	FY93: \$36,000	TOTAL: \$108,488
Prin. Invest.	NASA Tech. Officer	CASE Category
L VALERDE	HQ/B WHITE	49-Engr, NEC

**NGT 00-090-098 University of Texas at San Antonio 7852**  
 UNDERGRADUATE STUDENT RESEARCHERS PROGRAM (UMF)  

Period	Obligations	
09/24/1992-08/14/1993	FY93: \$12,000	TOTAL: \$12,000
Prin. Invest.	NASA Tech. Officer	CASE Category
L R WILLIAMS	HQ/D K RUSSELL	99-Multi-Discip

**NGT 00-090-099 University of Texas at San Antonio 7853**  
 UNDERGRADUATE STUDENT RESEARCHERS PROGRAM (UMF)  

Period	Obligations	
09/24/1992-08/14/1994	FY93: \$24,000	TOTAL: \$24,000
Prin. Invest.	NASA Tech. Officer	CASE Category
L R WILLIAMS	HQ/D K RUSSELL	99-Multi-Discip

**NGT 00-090-100 University of Texas at San Antonio 7854**  
 UNDERGRADUATE STUDENT RESEARCHERS PROGRAM (UMF)  

Period	Obligations	
09/24/1992-08/14/1994	FY93: \$24,000	TOTAL: \$24,000
Prin. Invest.	NASA Tech. Officer	CASE Category
L R WILLIAMS	HQ/D K RUSSELL	99-Multi-Discip

# NASA'S UNIVERSITY PROGRAM UTAH

## UTAH

**NAG 2-687 Brigham Young University 7855**  
PIONEER VENUS DATA ANALYSIS  
*Period* *Obligations*  
01/08/1991-09/30/1994 FY93: \$14,700 TOTAL: \$46,130  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
D E JONES ARC/L E LASHER 11-Astronomy  
...../R O FIMMEL

**NAGW 2461 Brigham Young University 7856**  
MODEL BASED WIND RETRIEVAL OF WIND FIELD USING SEA SAT  
SCATTEROMETER DATA  
*Period* *Obligations*  
07/15/1991-09/30/1993 FY93: \$20,285 TOTAL: \$231,962  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
D LONG HQ/D ADAMER 31-Atmos Sci  
...../R A SCHIFFER

**NAGW 2612 Brigham Young University 7857**  
SOFT X-RAY OBSERVATIONS OF THE SUN USING THE SPACE  
SHUTTLE  
*Period* *Obligations*  
09/09/1991-03/31/1993 FY93: \$0 TOTAL: \$87,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J W MOODY HQ/W WAGNER 13-Physics  
...../K LANG

**NAGW 2875 Brigham Young University 7858**  
RESEARCH IN OBSERVATIONS OF OCEANIC AIR/SEA INTERA  
CTION  
*Period* *Obligations*  
02/10/1992-02/14/1994 FY93: \$208,769 TOTAL: \$356,702  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
D G LONG HQ/J K ALEXANDER 33-Oceanography  
...../D A HOLLAND

**NGT 00-030-198 Brigham Young University 7859**  
NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period* *Obligations*  
08/25/1993-08/31/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
D LONG HQ/G ASRAR 33-Oceanography  
...../D M BUTLER

**NAG 1-868 University of Utah 7860**  
LIDAR STUDIES OF THIN CIRRUS FOR FIRE  
*Period* *Obligations*  
03/25/1988-05/31/1992 FY93: \$2 TOTAL: \$154,048  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
K SASSEN LARC/T OWENS 31-Atmos Sci  
...../H S WAGNER

**NAG 1-1048 University of Utah 7861**  
RADIATION PROGRAM IN SUPPORT OF REMOTE SENSING OF  
CIRRUS CLOUDS  
*Period* *Obligations*  
09/12/1989-03/31/1993 FY93: \$1 TOTAL: \$114,001  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
K N LIOU LARC/P MINNIS 31-Atmos Sci  
Y TAKANO ...../E F HARRISON

**NAG 1-1232 University of Utah 7862**  
AIRFOIL PERFORMANCE IN HIGH LIFT/MAXIMUM PERFORM- ANCE  
CONFIGURATIONS DURING HEAVY RAIN AND SNOW STORM  
*Period* *Obligations*  
02/26/1991-03/31/1994 FY93: \$45,000 TOTAL: \$116,480  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R A DECKER LARC/Z T APPLIN 41-Aero Engr  
...../G M BEZOS

**NAG 1-1314 University of Utah 7863**  
FARS CIRRUS MEASUREMENT FOR FIRE II  
*Period* *Obligations*  
07/23/1991-11/30/1993 FY93: \$20,000 TOTAL: \$127,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
K SASSEN LARC/D S MCDUGAL 31-Atmos Sci  
...../T L OWENS

**NAG 1-1379 University of Utah 7864**  
MULTIAXIAL CHARACTERIZATION OF STIFFNESS AND STRENGTH  
OF TEXTILE FIBER COMPOSITES  
*Period* *Obligations*  
01/28/1991-01/27/1994 FY93: \$60,880 TOTAL: \$125,057  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
S R SWANSON LARC/J R REEDER 47-Materials Engr  
...../C C POE JR

**NAG 2-435 University of Utah 7865**  
COMPREHENSIVE ANALYSIS OF BONES FROM IMMOBILIZED  
AIMMOBILIZED AND REAMBULATED MONKEYS  
*Period* *Obligations*  
03/01/1987-02/28/1994 FY93: \$58,200 TOTAL: \$416,650  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
W S JEE ARC/S B ARNAUD 51-Biological Sci

**NAG 5-127 University of Utah 7866**  
GLOBAL SCALE DIAGNOSIS OF SATELLITE DATA  
*Period* *Obligations*  
07/01/1981-11/30/1993 FY93: \$30,000 TOTAL: \$594,647  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J N PAEGLE GSFC/H M HELFAND 31-Atmos Sci

**NAG 5-1050 University of Utah 7867**  
RESEARCH RELATIVE TO SURFACE RADIATION RETRIEVAL  
METHODOLOGIES  
*Period* *Obligations*  
05/15/1988-02/28/1994 FY93: \$112,000 TOTAL: \$616,700  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
K N LIOU GSFC/M D CHOU 31-Atmos Sci

**NAG 5-1822 University of Utah 7868**  
NEOTECTONICS OF THE ALTIPLANO VIA PALEOLAKE SHOREL  
INES  
*Period* *Obligations*  
11/06/1991-11/14/1993 FY93: \$40,000 TOTAL: \$80,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
D R CURREY GSFC/B G BILLS 32-Geological Sci

**NASA'S UNIVERSITY PROGRAM**  
**UTAH (Continued)**

**NAG 5-2055 University of Utah 7869**  
 LIMNEOTECTONICS OF THE CANADIAN SHIELD  
*Period Obligations*  
 08/05/1992-09/14/1993 FY93: \$17,857 TOTAL: \$48,402  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D CURREY GSFC/B G BILLS 32-Geological Sci

**NAG 5-2200 University of Utah 7870**  
 IMAGE COMPRESSION USING HUMAN VISUAL SYSTEM MODELS ,  
 WAVELET TRANSFORM CODING AND MASSIVELY . . . .  
*Period Obligations*  
 02/23/1993-11/30/1993 FY93: \$30,000 TOTAL: \$30,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 V J MATHEWS GSFC/J R FISCHER 22-Computer Science

**NAG 5-2241 University of Utah 7871**  
 VEGETATION-ATMOSPHERE CO2 AND H2O EXCHANGE PROCESS  
 ES: STABLE ISOTOPE ANALYSES  
*Period Obligations*  
 04/08/1993-07/14/1994 FY93: \$55,000 TOTAL: \$55,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J EHLENGER GSFC/F G HALL 39-Env Sci, NEC  
 ....P SELLERS

**NAG 5-2338 University of Utah 7872**  
 MARS LIDAR FEASIBILITY MODELING STUDY  
*Period Obligations*  
 07/27/1993-07/31/1994 FY93: \$15,000 TOTAL: \$15,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 K SASSEN GSFC/J D SPINHIRNE 31-Atmos Sci  
 ....J B ABSHIRE

**NAG 5-2349 University of Utah 7873**  
 CONSTRAINTS ON GAMMA RAY BURSTER (GRB) SOURCE DIST  
 ANCES USING GRO/BATSE IN COINCIDENCE WITH . . . .  
*Period Obligations*  
 08/12/1993-08/31/1994 FY93: \$16,696 TOTAL: \$16,696  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D B KIEDA GSFC/J P NORRIS 11-Astronomy  
 ....N WHITE

**NAGW 1999 University of Utah 7874**  
 MAGPIE, A MAGNETIC PASSIVE ISOTOPE EXPERIMENT  
*Period Obligations*  
 07/11/1990-02/28/1994 FY93: \$130,000 TOTAL: \$477,976  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M H SALAMON HQ/W V JONES 13-Physics  
 ....J C LING

**NAGW 3687 University of Utah 7875**  
 INTERMOUNTAIN NETWORK AND SCIENTIFIC COMPUTATION C  
 ENTER  
*Period Obligations*  
 09/09/1993-07/31/1996 FY93: \$945,767 TOTAL: \$945,767  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R PUGMIRE HQ/W C STAMPER 99-Multi-Discip

**NAS 1-18833 University of Utah 7876**  
 ADVANCED COMPOSITE STRUCTURES, RESEARCH STUDY ON  
 CHARACTERIZING THE FRACTURE TOUGHNESS OF  
*Period Obligations*  
 12/08/1988-08/15/1992 FY93: \$1,270 TOTAL: \$178,210  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J A NAIRN LARC/J H CREWS 41-Aero Engr  
 ....C E HARRIS

**NAS 1-18883 University of Utah 7877**  
 EFFECTS OF MATRIX AND INTERPHASE ON CARBON FIBER  
 COMPOSITE COMPRESSION STRENGTH  
*Period Obligations*  
 03/28/1989-03/30/1994 FY93: \$0 TOTAL: \$417,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 W D BASCOM LERC/J A HINKLEY 46-Mech Engr  
 ....J H CREWS

**NAS 5-30776 University of Utah 7878**  
 EOS LAWS TEAM MEMBER INVESTIGATION  
*Period Obligations*  
 04/24/1990-04/14/1993 FY93: \$0 TOTAL: \$125,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J PAEGLE GSFC/G SOFFEN 31-Atmos Sci

**NAG 1-1334 Utah State University 7879**  
 COORDINATED UARS AND GROUND-BASED MEASUREMENTS OF  
 AIRGLOW, WINDS AND WAVES OF THE MIDDLE ATMOSPHERE  
*Period Obligations*  
 08/28/1991-06/30/1994 FY93: \$154,176 TOTAL: \$230,278  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 P J ESPY LARC/J G WELLS 31-Atmos Sci

**NAG 1-1335 Utah State University 7880**  
 CORRELATIVE ATMOSPHERIC SPECIES, TEMPERATURE,  
 DISTURBANCES AND ENERGY INPUT MEASUREMENTS  
*Period Obligations*  
 08/28/1991-01/31/1994 FY93: \$57,000 TOTAL: \$140,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 B WICKWAR LARC/J G WELLS 31-Atmos Sci  
 R J SICA  
 D REES

**NAG 5-603 Utah State University 7881**  
 STUDY OF ELECTROSTATIC WAVES  
*Period Obligations*  
 03/01/1982-06/30/1992 FY93: \$0 TOTAL: \$532,779  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 K D BAKER GSFC/L J EARLY 13-Physics  
 L C HOWLETT ....R H PLESS  
 J P ST MAURICE

**NAG 5-658 Utah State University 7882**  
 CHANGE TWO B ROCKET EXPERIMENT  
*Period Obligations*  
 08/09/1989-12/31/1992 FY93: \$0 TOTAL: \$430,939  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 W J RAITT GSFC/L J EARLY 13-Physics  
 ....R H PLESS



# NASA'S UNIVERSITY PROGRAM

## UTAH (Continued)

**NAG 5-672** **Utah State University** **7883**  
 SUBORBITAL PROGRAM MAGNETOSPHERIC/IONOSPHERIC  
*Period* *Obligations*  
 07/30/1990-06/30/1994 FY93: \$5,000 TOTAL: \$37,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 B G FEJER GSFC/L J EARLY 13-Physics  
 ....R H PLESS

**NAG 5-686** **Utah State University** **7884**  
 ROCKET PROBE MEASUREMENTS OF MESOSPHERIC ELECTRON  
 DENSITY BITE-OUTS AND TURBULENCE  
*Period* *Obligations*  
 05/29/1991-12/31/1993 FY93: \$0 TOTAL: \$145,856  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 J C ULWICK GSFC/L J EARLY 13-Physics  
 ....R H PLESS

**NAG 5-1484** **Utah State University** **7885**  
 THE FLOW OF PLASMA IN THE SOLAR TERRESTRIAL  
 ENVIRONMENT  
*Period* *Obligations*  
 11/26/1990-12/31/1993 FY93: \$260,000 TOTAL: \$760,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 R W SCHUNK GSFC/T J BIRMINGHAM 13-Physics

**NAG 5-1546** **Utah State University** **7886**  
 THE EFFECTS OF WAVE-PARTICLE INTERACTIONS ON ION O  
 UTFLOW AT HIGH LATITUDES  
*Period* *Obligations*  
 04/17/1991-04/30/1994 FY93: \$50,000 TOTAL: \$135,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 A R BARAKAT GSFC/G D BULLOCK 19-Phys Sci, NEC

**NAG 5-2043** **Utah State University** **7887**  
 MESOSCALE STUDY OF SURFACE HEAT FLUXES AND BOUNDAR Y  
 LAYER PROCESSES IN A DESERT REGION  
*Period* *Obligations*  
 07/28/1992-07/31/1994 FY93: \$140,000 TOTAL: \$240,026  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 C BINGHAM GSFC/E T ENGMAN 39-Env Sci, NEC

**NAG 8-897** **Utah State University** **7888**  
 IMPROVEMENT AND FURTHER DEVELOPMENT OF SSM/I OVER-  
 LAND PARAMETER ALGORITHMS USITN THE WETNET WORKST  
*Period* *Obligations*  
 11/04/1991-11/03/1993 FY93: \$0 TOTAL: \$135,346  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 J J MCDONNELL MSFC/J C LUVALL 31-Atmos Sci

**NAGW 1556** **Utah State University** **7889**  
 NIGHTWARD FLOW OF ENERGY AND MOMENTUM IN VENUS  
 IONOSPHERE  
*Period* *Obligations*  
 12/21/1988-04/30/1992 FY93: \$0 TOTAL: \$144,745  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 K L MILLER HQ/J T BERGSTRAHL 31-Atmos Sci

**NAGW 2066** **Utah State University** **7890**  
 NAGW-2066/UTAH STATE UNIV/PROPOSAL TO COMPLETE THE  
 DATA ANALYSIS OF LDEF EXPERIMENT A0038  
*Period* *Obligations*  
 06/08/1990-02/29/1992 FY93: \$0 TOTAL: \$90,400  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 D D LIND HQ/W V JONES 13-Physics  
 ....J C LING

**NAGW 2103** **Utah State University** **7891**  
 NAGW-2103/UTAH STATE UNIV/SATELLITE STUDIES OF LOW  
 LATITUDE IONOSPHERIC PLAMA DRIFTS  
*Period* *Obligations*  
 05/09/1990-03/31/1994 FY93: \$60,269 TOTAL: \$217,654  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 B G FEJER HQ/M M MELLOTT 13-Physics  
 ....T PERRY

**NAGW 2852** **Utah State University** **7892**  
 NAGW-2852/UTAH STATE UNIV/STUDY OF IN SITU EVIDENC E OF  
 ALFVEN'S CRITICAL IONIZATION VELOCITY EFFECT  
*Period* *Obligations*  
 01/31/1992-03/31/1994 FY93: \$0 TOTAL: \$34,942  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 C SWENSON HQ/D L REASONER 13-Physics  
 ....J D BOHLIN

**NAGW 3029** **Utah State University** **7893**  
 SPACE DYNAMICS LABORATORY PROJECT  
*Period* *Obligations*  
 04/09/1992-09/30/1994 FY93: \$0 TOTAL: \$10,000,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 W WATKINS HQ/R SPILLINGER 31-Atmos Sci

**NAGW 3221** **Utah State University** **7894**  
 NAGW-3221/UTAH STATE UNIV/SPECIAL SENSOR MICROWAVE L  
 IMAGE PATHFINDER ACTIVITIES  
*Period* *Obligations*  
 11/02/1992-09/14/1993 FY93: \$14,318 TOTAL: \$14,318  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 C M NEALE HQ/M E MAIDEN 39-Env Sci, NEC  
 ....D M BUTLER

**NAGW 3567** **Utah State University** **7895**  
 A GENER. TRANSPORT MODEL OF PLASMA FLOW IN SATURN' S  
 INNER MAGNETOSPHERE  
*Period* *Obligations*  
 05/14/1993-04/30/1994 FY93: \$49,500 TOTAL: \$49,500  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 H G DEMARS HQ/E C WHIPPLE 13-Physics  
 ....G L WITHBROE

**NAGW 3689** **Utah State University** **7896**  
 ANALYSIS OF ION-MODE MEASUREMENTS BY THE PIONEER V VENUS  
 RETARDING POTENTIAL ANALYZER  
*Period* *Obligations*  
 08/18/1993-05/31/1994 FY93: \$60,000 TOTAL: \$60,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 K L MILLER HQ/J T BERGSTRAHL 31-Atmos Sci

# NASA'S UNIVERSITY PROGRAM

## UTAH (Continued)

**NAG10-73** **Utah State University** **7897**  
 DEVELOPMENTAL STUDIES OF WHEAT IN MICROGRAVITY  
*Period* *Obligations*  
 06/01/1990-02/28/1994 FY93: \$375,000 TOTAL: \$531,374  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 F B SALISBURY KSC/W M KNOTT 13-Physics

**NAS 1-19418** **Utah State University** **7898**  
 JOINT DAMPING EXPERIMENT  
*Period* *Obligations*  
 08/19/1991-12/18/1995 FY93: \$215,000 TOTAL: \$309,946  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 S L FOLKMAN LARC/M S LAKE 46-Mech Engr  
 ....W B FICHTER

**NAS 8-37110** **Utah State University** **7899**  
 STUDY ENTITLED 'RESEARCH ON ORBITAL  
 PLASMA-ELECTRODYNAMICS.'  
*Period* *Obligations*  
 05/04/1987-10/29/1993 FY93: \$9,000 TOTAL: \$50,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 N STONE MSFC/B DUNCAN 31-Atmos Sci  
 R SCHUNK ....R HOLDER

**NCA 2-662** **Utah State University** **7900**  
 ASSESSMENT OF RESEARCH CAPABILITY FOR LIFE SUPPORT IN  
 SPACE  
*Period* *Obligations*  
 09/23/1991-03/22/1993 FY93: \$0 TOTAL: \$15,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 B BUGBEE ARC/W BERRY 59-Life Sci, NEC  
 ....P CHENG

**NCC 2-139** **Utah State University** **7901**  
 STUDIES ON MAXIMUM YIELD OF WHEAT AND OTHER SMALL GRAIN  
 IN CONTROLLED ENVIRONMENTS  
*Period* *Obligations*  
 05/01/1981-03/31/1994 FY93: \$141,550 TOTAL: \$1,506,096  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 F B SALISBURY ARC/R D MACELROY 51-Biological Sci  
 B BUGBEE

**NGT 00-040-014** **Utah State University** **7902**  
 NATIONAL SPACE GRANT COLLEGE AND FELLOWSHIP PROGRAM  
*Period* *Obligations*  
 10/04/1989-01/31/1994 FY93: \$348,000 TOTAL: \$1,393,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 F J REDD HQ/E T SCHWARTZ 99-Multi-Discip  
 D J BAKER

**NAG 9-496** **Utah Valley Community College** **7903**  
 HYPERVELOCITY DRAG ACCELERATOR  
*Period* *Obligations*  
 03/15/1991-04/01/1994 FY93: \$20,000 TOTAL: \$60,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 T W LEE JSC/J L CREWS 19-Phys Sci, NEC

**NAG 8-214** **Weber State College** **7904**  
 JOVE  
*Period* *Obligations*  
 01/09/1992-07/15/1994 FY93: \$19,385 TOTAL: \$60,345  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 D M VAUGHN MSFC/F SIX 39-Env Sci, NEC

## VERMONT

**NAG 5-1408** **Middlebury College** **7905**  
 CIRCUMSTELLAR MATERIAL IN THE PUPPIS  
*Period* *Obligations*  
 08/08/1990-08/31/1992 FY93: \$0 TOTAL: \$9,149  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 P F WINKLER GSFC/D WEST 11-Astronomy

**NAG 5-1668** **Middlebury College** **7906**  
 DETAILED X-RAY IMAGES OF THE SN 1006 SUPERNOVA REM  
 NANT  
*Period* *Obligations*  
 06/27/1991-06/30/1994 FY93: \$0 TOTAL: \$25,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 P F WINKLER GSFC/R PETRE 11-Astronomy

**NAG 8-238** **Middlebury College** **7907**  
 JOVE  
*Period* *Obligations*  
 06/19/1992-04/02/1994 FY93: \$17,500 TOTAL: \$27,947  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 W TIMOSZYK MSFC/F SIX 13-Physics

**NAGW 2141** **Middlebury College** **7908**  
 NAGW-2141/MIDDLEBURY COLLEGE/CURRENT SHEET FORMATI ON  
 AND LOSS OF EQUILIBRIUM  
*Period* *Obligations*  
 08/08/1990-09/30/1992 FY93: \$0 TOTAL: \$128,197  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 R WOLFSON HQ/J D BOHLIN 13-Physics  
 ....S KANE

**NAG 9-312** **Norwich University** **7909**  
 MULTIPROCESSOR TECHNIQUES IN DATA ACQUIS  
*Period* *Obligations*  
 08/23/1988-08/01/1994 FY93: \$24,990 TOTAL: \$124,916  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 P N BARTRAM JSC/D STILWELL 22-Computer Science

**NAG 1-1097** **Univ of Vermont & St Agricultural Col.** **7910**  
 COMPUTATIONAL STRUCTURAL MECHANICS SOLUTIONS OF  
 ROTATING BLADE DYNAMICS USING INTEGRATING MATRICES  
*Period* *Obligations*  
 02/09/1990-02/28/1992 FY93: \$1 TOTAL: \$39,999  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 W D LAKIN LARC/R G KVATERNIK 41-Aero Engr

**NAGW 3604** **Univ of Vermont & St Agricultural Col.** **7911**  
 SELF-GENERATED BENDING MOMENTS IN ROOT GRAVITROPIS M  
*Period* *Obligations*  
 05/26/1993-05/31/1994 FY93: \$20,000 TOTAL: \$20,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 P M LINTILHAC HQ/T W HALSTEAD 51-Biological Sci

# NASA'S UNIVERSITY PROGRAM

## VERMONT (Continued)

### NGT 00-040-054 Univ of Vermont & St Agricultural Col. 7912

NGT-40054/UNIV VERMONT/NATIONAL SPACE GRANT COLLEGE AND FELLOWSHIP PROGRAM

Period	Obligations	
05/29/1992-01/31/1994	FY93: \$173,000	TOTAL: \$323,000
Prin. Invest.	NASA Tech. Officer	CASE Category
W D LAKIN	HQ/L KEFFER	99-Multi-Discip
T S KELLER		

### NAGW 3736 Christopher Newport College 7919

CONTROLS ON METHANE EMISSIONS FROM VEGETATED WETLANDS

Period	Obligations	
09/09/1993-06/30/1994	FY93: \$50,000	TOTAL: \$50,000
Prin. Invest.	NASA Tech. Officer	CASE Category
G J WHITING	HQ/D E WICKLAND	39-Env Sci, NEC
J CHANTON	....A C JANETOS	

## VIRGINIA

### NAG 1-796 Christopher Newport College 7913

SPECTROSCOPY OF TUNABLE SOLID STATE LASER MATERIALS

Period	Obligations	
07/09/1987-08/31/1994	FY93: \$89,702	TOTAL: \$764,304
Prin. Invest.	NASA Tech. Officer	CASE Category
A M BUONCRISTIANI	LARC/P BROCKMAN	13-Physics
	....R V HESS	

### NAG 1-1182 Christopher Newport College 7914

SCHOOL SCIENCE COMES ALIVE

Period	Obligations	
09/10/1990-05/31/1993	FY93: \$1	TOTAL: \$108,980
Prin. Invest.	NASA Tech. Officer	CASE Category
F HARTLINE	LARC/S E MASSENBERG	99-Multi-Discip
G WEBB		

### NAG 1-1242 Christopher Newport College 7915

CHARACTERIZING AND TESTING A THERMALLY ISOLATING SUPERCONDUCTING LINK FOR SAFIRE-LIKE MISSIONS

Period	Obligations	
03/27/1991-08/31/1994	FY93: \$24,959	TOTAL: \$117,279
Prin. Invest.	NASA Tech. Officer	CASE Category
R SELIM	LARC/F ALLAMBY	47-Materials Engr
R CATON	....S WISE	

### NAG 1-1286 Christopher Newport College 7916

SHIELDING FROM SPACE RADIATION

Period	Obligations	
05/15/1991-06/30/1993	FY93: \$38,580	TOTAL: \$163,621
Prin. Invest.	NASA Tech. Officer	CASE Category
C K CHANG	LARC/J L SHINN	13-Physics
	....W E MEADOR	

### NAG 1-1439 Christopher Newport College 7917

HIGH SPEED DATA ENCODING/DECODING

Period	Obligations	
05/18/1992-12/31/1993	FY93: \$22,501	TOTAL: \$32,501
Prin. Invest.	NASA Tech. Officer	CASE Category
R F HODSON	LARC/S G JURCZYK	45-Elec Engr
	....T A SHULL	

### NAG 1-1443 Christopher Newport College 7918

OPTICAL FIBER SPECTROSCOPY

Period	Obligations	
06/16/1992-12/30/1994	FY93: \$30,000	TOTAL: \$57,140
Prin. Invest.	NASA Tech. Officer	CASE Category
A M BUONCRISTIANI	LARC/R S ROGOWSKI	45-Elec Engr

### NCC 1-178 Christopher Newport College 7920

SHIELDING FROM SPACE RADIATIONS NLPN 93-313

Period	Obligations	
04/13/1993-01/31/1994	FY93: \$105,098	TOTAL: \$105,098
Prin. Invest.	NASA Tech. Officer	CASE Category
C K CHANG	LARC/J L SHINN	13-Physics
	....E J CONWAY	

### NCC 1-179 Christopher Newport College 7921

SPECTROSCOPY OF SOLID STATE LASER MATERIALS

Period	Obligations	
04/23/1993-06/14/1994	FY93: \$64,990	TOTAL: \$64,990
Prin. Invest.	NASA Tech. Officer	CASE Category
A M BUONCRISTIANI	LARC/C P RINSLAND	31-Atmos Sci

### NGT 00-090-156 Christopher Newport College 7922

SCHOOL SCIENCE COMES ALIVE

Period	Obligations	
01/13/1993-01/14/1994	FY93: \$54,180	TOTAL: \$54,180
Prin. Invest.	NASA Tech. Officer	CASE Category
F HARTLINE	LARC/R LANG	99-Multi-Discip
G WEBB	....B WHITE	

### NAG 1-237 College of William And Mary 7923

CHARACTERIZATION OF RELATIONSHIP OF CURE CYCLE PROCESSING PROPERTIES

Period	Obligations	
11/05/1981-11/30/1993	FY93: \$59,144	TOTAL: \$777,605
Prin. Invest.	NASA Tech. Officer	CASE Category
D E KRANBUEHL	LARC/E R LONG	12-Chemistry
	....B DEXTER	

### NAG 1-884 College of William And Mary 7924

TOWARD A PRACTICAL THEORY OF ULTRA-RELIABLE SOFTWARE

Period	Obligations	
05/18/1988-12/31/1993	FY93: \$52,359	TOTAL: \$363,836
Prin. Invest.	NASA Tech. Officer	CASE Category
K W MILLER	LARC/D E ECKHARDT	22-Computer Science
R E NOONAN		
S K PARK		

### NAG 1-995 College of William And Mary 7925

A STUDY OF THE PARALLELIZATION OF ERBE DATA PROCESSING

Period	Obligations	
04/14/1989-05/31/1993	FY93: \$1	TOTAL: \$176,521
Prin. Invest.	NASA Tech. Officer	CASE Category
D M NICHOL	LARC/R J KEYNTON	22-Computer Science
	....J W YOUNGBLOOD	

**NASA'S UNIVERSITY PROGRAM**  
**VIRGINIA (Continued)**

**NAG 1-1019 College of William And Mary 7926**  
 FREQUENCY DEPENDENT ELECTROMAGNETIC SENSING FOR IN  
 SITU MONITORING OF HIGH PERFORMANCE THERMOSET AND  
*Period Obligations*  
 06/01/1989-06/30/1994 FY93: \$0 TOTAL: \$335,430  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D E KRANBUEHL LARC/E R LONG 12-Chemistry

**NAG 1-1060 College of William And Mary 7927**  
 PARALLELIZATION OF PERFORMABILITY DESIGN TOOLS  
*Period Obligations*  
 09/14/1989-12/31/1992 FY93: \$0 TOTAL: \$57,500  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D M NICHOL LARC/W H BRYANT 22-Computer Science

**NAG 1-1063 College of William And Mary 7928**  
 QUANTITATIVE NONDESTRUCTIVE EVALUATION OF MATERIALS AND  
 STRUCTURES  
*Period Obligations*  
 09/26/1989-01/31/1994 FY93: \$128,909 TOTAL: \$398,013  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 B T SMITH LARC/P H JOHNSTON 13-Physics

**NAG 1-1132 College of William And Mary 7929**  
 A RELIABILITY ESTIMATION SYSTEM TESTBED  
*Period Obligations*  
 04/19/1990-05/15/1994 FY93: \$25,000 TOTAL: \$135,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D M NICOL LARC/D L PALUMBO 29-Math/Computer, NEC

**NAS 1-18347 College of William And Mary 7930**  
 PHYSICAL, MATHEMATICAL, AND COMPUTER SCIENCE RESEARCH  
*Period Obligations*  
 01/13/1987-12/31/1992 FY93: \$19,160 TOTAL: \$2,567,033  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D E KRANBUEHL LARC/E J PRIOR 99-Multi-Discip  
 ....S E MASSENBERG

**NAS 1-19656 College of William And Mary 7931**  
 PHYSICAL, MATHEMATICAL, AND COMPUTER SCIENCE RESEA RCH  
*Period Obligations*  
 08/05/1992-08/05/1998 FY93: \$1,230,307 TOTAL: \$1,267,303  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 C S WELCH LARC/E J PRIOR 19-Phys Sci, NEC  
 M C WU ....R L YANG

**NCC 1-40 College of William And Mary 7932**  
 TIRE NONLINEAR MODEL  
*Period Obligations*  
 03/25/1980-12/31/1992 FY93: \$20,374 TOTAL: \$905,778  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 C M ANDERSON LARC/J A TANNER 46-Mech Engr  
 ....M P ROBINSON

**NCC 1-43 College of William And Mary 7933**  
 HALOE SCIENCE INVESTIGATION  
*Period Obligations*  
 07/16/1980-12/31/1993 FY93: \$0 TOTAL: \$897,889  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D C BENNER LARC/J PARK 31-Atmos Sci  
 ....J M RUSSELL

**NCC 1-80 College of William And Mary 7934**  
 HIGH RESOLUTION SPECTROSCOPY TO SUPPORT ATMOSPHERIC  
 MEASUREMENTS  
*Period Obligations*  
 07/18/1983-03/31/1994 FY93: \$96,845 TOTAL: \$768,052  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D C BENNER LARC/M A SMITH 13-Physics  
 M D VENKATARAMAN ....C P RINSLAND

**NCC 1-126 College of William And Mary 7935**  
 THE EFFECTS OF THE INTERACTION OF POLYMERIC MATERIALS  
 WITH THE SPACE ENVIRONMENT  
*Period Obligations*  
 06/16/1988-12/31/1992 FY93: \$1 TOTAL: \$84,527  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R L KIEFER LARC/S T LONG 12-Chemistry  
 R A ORWOLL ....G M WOOD

**NCC 1-150 College of William And Mary 7936**  
 DEVELOPMENT OF ADVANCED POLYMERIC ADHESIVES AND  
 FABRICATION AND EVALUATION OF COMPOSITE MATERIALS  
*Period Obligations*  
 03/08/1991-03/06/1994 FY93: \$150,251 TOTAL: \$369,555  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R A ORWOLL LARC/T L ST. CLAIR 99-Multi-Discip

**NCC 1-151 College of William And Mary 7937**  
 SHIELDING MATERIALS FOR HIGHLY PENETRATING SPACE  
 RADIATIONS  
*Period Obligations*  
 04/09/1991-10/07/1993 FY93: \$21,000 TOTAL: \$129,803  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R L KIEFER LARC/S A LONG 19-Phys Sci, NEC  
 R A ORWOLL

**NCC 1-159 College of William And Mary 7938**  
 CASE-BASED REASONING ABOUT PHYSICAL SYSTEMS  
*Period Obligations*  
 08/15/1991-08/12/1994 FY93: \$49,126 TOTAL: \$105,123  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S FEYOCK LARC/P C SCHUTTE 22-Computer Science

**NCC 1-160 College of William And Mary 7939**  
 INCONGRUITY, INCONGRUITY RESOLUTION AND MENTAL STATES  
 MEASURE AND MODIFICATION OF SITUATIONAL AWARENESS  
*Period Obligations*  
 09/24/1991-03/31/1994 FY93: \$0 TOTAL: \$40,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 P L DERKS LARC/A T POPE 69-Psych, NEC  
 L S GILLIKIN ....J R COMSTOCK

**NGT 00-051-008 College of William And Mary 7940**  
 GSRP  
*Period Obligations*  
 09/12/1992-08/14/1994 FY93: \$44,000 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R ORWELL LARC/E PRIOR 46-Mech Engr

**NASA'S UNIVERSITY PROGRAM**  
**VIRGINIA (Continued)**

**NGT 00-070-170 College of William And Mary 7941**  
NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
MINORITY FOCUS PROGRAM  
*Period* *Obligations*  
06/19/1990-05/31/1993 FY93: \$22,000 TOTAL: \$44,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
S PARK LARC/E PRIOR 22-Computer Science

**NGT 00-070-211 College of William And Mary 7942**  
NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
MINORITY FOCUS PROGRAM  
*Period* *Obligations*  
06/28/1991-06/30/1994 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R A ORWOLL HQ/F C OWENS 12-Chemistry

**NGT 00-070-247 College of William And Mary 7943**  
NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
MINORITY FOCUS PROGRAM  
*Period* *Obligations*  
10/28/1991-08/31/1993 FY93: \$0 TOTAL: \$22,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
S K PARK LARC/E J PRIOR 22-Computer Science

**NGT 00-070-293 College of William And Mary 7944**  
NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
MINORITY FOCUS PROGRAM  
*Period* *Obligations*  
08/14/1992-06/30/1994 FY93: \$22,000 TOTAL: \$44,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R A ORWOLL LARC/E PRIOR 41-Aero Engr

**NGT 00-070-306 College of William And Mary 7945**  
NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
MINORITY FOCUS PROGRAM  
*Period* *Obligations*  
05/14/1993-05/31/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
S FEYOCK HQ/D K RUSSELL 22-Computer Science

**NAG 2-343 Estrn Va Med Schl-Estrn Va Med 7946**  
**Authority**  
EFFECTS OF WEIGHTLESSNESS ON AURELIA EPHYRA  
DIFFERENTIATION  
*Period* *Obligations*  
01/01/1985-12/31/1992 FY93: \$0 TOTAL: \$726,218  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
D B SPANGENBERG ARC/C M WINGET 51-Biological Sci

**NAG 2-767 Estrn Va Med Schl-Estrn Va Med 7947**  
**Authority**  
EFFECTS OF MICROGRAVITY ON AURELIA EPHYRA BEHAVIOR AND  
DEVELOPMENT  
*Period* *Obligations*  
03/03/1992-12/31/1993 FY93: \$163,434 TOTAL: \$232,262  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
D B SPANGENBERG ARC/C M WINGET 51-Biological Sci  
...../R W BALLARD

**NAGW 1784 Estrn Va Med Schl-Estrn Va Med 7948**  
**Authority**  
DEVELOPMENT OF AURELIA GRAVICEPTORS IN CELL CULTURE  
MEDIA  
*Period* *Obligations*  
08/02/1989-12/31/1992 FY93: \$0 TOTAL: \$30,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
D B SPANGENBERG HQ/T HALSTEAD 56-Medical Sciences

**NAG 1-1425 George Mason University 7949**  
PERCEPTUAL FACTORS THAT INFLUENCE EFFECTIVE USE OF  
COMPUTER ENHANCED VISUAL DISPLAYS  
*Period* *Obligations*  
04/30/1992-04/30/1993 FY93: \$0 TOTAL: \$59,141  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
D LITTMAN LARC/J R BURLEY 69-Psych, NEC  
D B DAVIS ....S L WILLIAMS  
S OVERMYER

**NAG 3-1397 George Mason University 7950**  
A PROPOSAL FOR FURTHER INVESTIGATION OF MODIFIED B  
ARRIER FUNCTION METHODS FOR SOLVING STRUCT OPT PR  
*Period* *Obligations*  
12/22/1992-12/31/1993 FY93: \$39,954 TOTAL: \$39,954  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R A POLYAK LERC/L BERKE 21-Mathematics

**NAG 5-1495 George Mason University 7951**  
HOLOGEN LAMP ANNEALING OF AMOSPHOUS/POLY MATERIALS  
*Period* *Obligations*  
01/28/1991-05/14/1993 FY93: \$0 TOTAL: \$110,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
E D COLE GSFC/L R PURVES 47-Materials Engr

**NAG 5-1567 George Mason University 7952**  
TIME CORRELATIONS BETWEEN LOW AND HIGH ENERGY GAMMA A  
RAYS  
*Period* *Obligations*  
04/17/1991-05/14/1993 FY93: \$0 TOTAL: \$39,729  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R ELLSWORTH GSFC/J P NORRIS 11-Astronomy  
...../D A KNIFFEN

**NAG 5-2025 George Mason University 7953**  
HIGH-ENERGY EMISSION FROM HOT ACCRETION DISKS IN A CTIVE  
GALACTIC NUCLEI  
*Period* *Obligations*  
07/17/1992-01/31/1994 FY93: \$50,930 TOTAL: \$84,883  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
M KAFATOS GSFC/J P NORRIS 11-Astronomy  
...../N WHITE

**NAG 5-2247 George Mason University 7954**  
SUSTAINING ENGINEERING: LIFE CYCLE SUPPORT FOR EV  
OLUTINARY SOFTWARE DEVELOPMENT  
*Period* *Obligations*  
04/14/1993-04/14/1994 FY93: \$44,000 TOTAL: \$44,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
H GOMMA GSFC/W TRUSZKOWSKI 22-Computer Science  
...../K MUELLER

**NASA'S UNIVERSITY PROGRAM**  
**VIRGINIA (Continued)**

**NAG 5-2320 George Mason University 7955**  
ROMPS: HALOGEN LAMP ANNEALING OF POLY-CRYSTALLINE SEMICONDUCTORS - A GATEWAY SPECIAL/HITCHHIKER...  
*Period Obligations*  
07/15/1993-02/28/1994 FY93: \$29,842 TOTAL: \$29,842  
*Prin. Invest. NASA Tech. Officer CASE Category*  
E D COLE GSFC/L R PURVES 47-Materials Engr

**NAG 5-2327 George Mason University 7956**  
MODELS OF PARALLEL COMPUTING STRUCTURES UTILIZING HIERARCHIAL HIGH LEVEL COLORED PETRI NETS  
*Period Obligations*  
07/15/1993-07/31/1994 FY93: \$19,998 TOTAL: \$19,998  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D H SCHAEFER GSFC/J R FISCHER 22-Computer Science  
....J E DORBAND

**NAG 5-2360 George Mason University 7957**  
EUVE OBSERV. OF THE SYMBIOTIC STAR R AQUARI 2) MORPHOLOGY OF THE LOCAL H I VOID AND THE IONIZATION  
*Period Obligations*  
08/30/1993-09/14/1994 FY93: \$76,305 TOTAL: \$76,305  
*Prin. Invest. NASA Tech. Officer CASE Category*  
M KAFATOS GSFC/R OLIVERSEN 11-Astronomy

**NAGW 1943 George Mason University 7958**  
A SPECTROFLUOROMETRIC STUDY OF THE MECHANISM OF RN A BINDING BY PROTEIN AL  
*Period Obligations*  
04/10/1990-11/01/1992 FY93: \$0 TOTAL: \$12,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
M HOLLANDER HQ/J D RUMMEL 51-Biological Sci

**NAGW 2758 George Mason University 7959**  
SEARCH FOR GAMMA RAY EMISSION LINES FROM SS44  
*Period Obligations*  
11/01/1991-10/31/1992 FY93: \$0 TOTAL: \$27,629  
*Prin. Invest. NASA Tech. Officer CASE Category*  
B J GELDZAHLER HQ/W J WAGNER 13-Physics  
....K LANG

**NCA 2-487 George Mason University 7960**  
THE ROLE OF AMPHIPHILIC BILAYER VESICLES IN BIOGENESIS  
*Period Obligations*  
02/12/1990-02/29/1992 FY93: \$0 TOTAL: \$65,100  
*Prin. Invest. NASA Tech. Officer CASE Category*  
H MOROWITZ ARC/S CHANG 51-Biological Sci

**NCC 5-52 George Mason University 7961**  
A COLLABORATION BETWEEN GEORGE MASON UNIVERSITY AND NASA FOR THE STUDY OF GAMMA RAY ASTROPHYSICS  
*Period Obligations*  
06/22/1993-06/30/1994 FY93: \$45,000 TOTAL: \$45,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
M KAFATOS GSFC/J P NORRIS 13-Physics

**NAG 5-1742 Hampden-Sydney College 7962**  
ANALYSIS OF DATA FROM THE EGRET ON THE GRO  
*Period Obligations*  
08/15/1991-08/14/1994 FY93: \$98,884 TOTAL: \$150,834  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D A KNIFFEN GSFC/C E FICHEL 11-Astronomy

**NAG 1-767 Hampton University 7963**  
EVALUATION OF ON-BOARD HYDROGEN STORAGE METHODS FOR HIGH-SPEED AIRCRAFT  
*Period Obligations*  
05/06/1987-06/30/1993 FY93: \$1 TOTAL: \$379,988  
*Prin. Invest. NASA Tech. Officer CASE Category*  
A ADEYIGA LARC/G B NORTHAM 43-Chem Engr  
A AKYURTLE ....G L PELLETT  
J F AKYURTLE

**NAG 1-768 Hampton University 7964**  
AUTOREGRESSIVE REPRESENTATION FOR HARMONIZABLE PROCESSES  
*Period Obligations*  
05/27/1987-03/31/1992 FY93: \$0 TOTAL: \$239,564  
*Prin. Invest. NASA Tech. Officer CASE Category*  
A G MIAMEC LARC/J C HARDIN 21-Mathematics

**NAG 1-905 Hampton University 7965**  
SYNTHESIS OF MONOMERS WITH PENDENT ETHYNYL GROUPS FOR MODIFIED HIGH PERFORMANCE THERMOPLASTICS  
*Period Obligations*  
08/02/1988-08/31/1994 FY93: \$0 TOTAL: \$240,921  
*Prin. Invest. NASA Tech. Officer CASE Category*  
G NWOKOGU LARC/P M HERGENROTHER 12-Chemistry  
....J W CONNELL

**NAG 1-948 Hampton University 7966**  
INVESTIGATIONS INTO THE SHAPE-PRESERVING INTERPOLANTS USING SYMBOLIC COMPUTATION  
*Period Obligations*  
12/07/1988-08/31/1993 FY93: \$0 TOTAL: \$135,023  
*Prin. Invest. NASA Tech. Officer CASE Category*  
M LAM LARC/R E SMITH 21-Mathematics  
....J N SHOOSMITH

**NAG 1-949 Hampton University 7967**  
PARALLEL ARCHITECTURES FOR PLANETARY EXPLORATION REQUIREMENTS  
*Period Obligations*  
01/12/1989-08/31/1994 FY93: \$0 TOTAL: \$200,757  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R CEZZAR LARC/W H BRYANT 22-Computer Science  
R K SEN ....S D YOUNG  
R A WILLIS

**NAG 1-970 Hampton University 7968**  
PLASMA-PUFF INITIATION OF HIGH SOULOMB TRANSFER SWITCHES  
*Period Obligations*  
02/10/1989-03/31/1992 FY93: \$0 TOTAL: \$164,191  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D D VENABLE LARC/M D WILLIAMS 13-Physics  
....W E MEADOR

**NASA'S UNIVERSITY PROGRAM**  
**VIRGINIA (Continued)**

**NAG 1-1091 Hampton University 7969**  
A CENTER FOR SPACEBORNE PHOTONICS  
*Period Obligations*  
02/26/1990-05/31/1994 FY93: \$0 TOTAL: \$2,773,218  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D D VENABLE LARC/E J CONWAY 13-Physics  
...../R V HESS

**NAG 1-1110 Hampton University 7970**  
HYDROGEN PARTITIONING AND TRANSPORT IN TITANIUM ALUMINIDES  
*Period Obligations*  
03/02/1990-08/31/1993 FY93: \$0 TOTAL: \$87,563  
*Prin. Invest. NASA Tech. Officer CASE Category*  
K S HAN LARC/R A OUTLAW 47-Materials Engr  
...../W E MEADOR

**NAG 1-1168 Hampton University 7971**  
INVESTIGATION OF POLYMER LIQUID CRYSTAL  
*Period Obligations*  
08/24/1990-09/30/1993 FY93: \$0 TOTAL: \$307,055  
*Prin. Invest. NASA Tech. Officer CASE Category*  
K S HAN LARC/J J SINGH 13-Physics  
A EFTEKHARI ...../D R SPRINKLE

**NAG 1-1170 Hampton University 7972**  
STEADY AND UNSTEADY THREE-DIMENSIONAL TRANSONIC FLOW COMPUTATIONS BY INTEGRAL EQUATION METHOD  
*Period Obligations*  
08/24/1990-12/31/1993 FY93: \$65,000 TOTAL: \$211,206  
*Prin. Invest. NASA Tech. Officer CASE Category*  
H HU LARC/E C YATES 41-Aero Engr

**NAG 1-1185 Hampton University 7973**  
THE AMERICAN INDIAN EDUCATION OPPORTUNITIES PROGRAM  
*Period Obligations*  
09/13/1990-06/30/1994 FY93: \$109,600 TOTAL: \$193,600  
*Prin. Invest. NASA Tech. Officer CASE Category*  
P F MOLIN LARC/S E MASSENBERG 99-Multi-Discip  
D D VENABLE

**NAG 1-1237 Hampton University 7974**  
JOINT WORKSHOP ON NONSTATIONARY RANDOM PROCESSES AND THEIR APPLICATIONS  
*Period Obligations*  
03/07/1991-08/05/1992 FY93: \$0 TOTAL: \$7,950  
*Prin. Invest. NASA Tech. Officer CASE Category*  
A G MIAMER LARC/J C HARDIN 41-Aero Engr

**NAG 5-929 Hampton University 7975**  
RESEARCH OF COSMIC RAY INDUCED SINGLE EVENT UPSET PHENOMINA IN SEMICONDUCTOR DEVICES  
*Period Obligations*  
06/15/1987-11/30/1991 FY93: \$98,786 TOTAL: \$687,605  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D D VENABLE GSFC/E G STASSINOPOALOS 31-Atmos Sci

**NAG 9-333 Hampton University 7976**  
RADIATION EFFECTS/MATERIAL SYS DEVICES  
*Period Obligations*  
01/03/1989-08/31/1993 FY93: \$0 TOTAL: \$345,489  
*Prin. Invest. NASA Tech. Officer CASE Category*  
A A ADEYIGA JSC/C HERMAN 19-Phys Sci, NEC

**NAGW 2929 Hampton University 7977**  
THE RESEARCH CENTER FOR OPTICAL PHYSICS  
*Period Obligations*  
02/19/1992-12/31/1993 FY93: \$1,996,774 TOTAL: \$2,369,839  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D D VENABLE HQ/S E MASSENBERG 13-Physics  
...../S HARTMAN

**NAS 1-19935 Hampton University 7978**  
RESEARCH IN AIRWAY SCI, ARCH, AND PHYS  
*Period Obligations*  
01/29/1993-01/28/1999 FY93: \$494,521 TOTAL: \$494,521  
*Prin. Invest. NASA Tech. Officer CASE Category*  
N LARC/R L YANG; 99-Multi-Discip  
...../E J PRIOR

**NCC 1-125 Hampton University 7979**  
AIR TRAFFIC CONTROL SIMULATION  
*Period Obligations*  
06/02/1988-08/31/1992 FY93: \$0 TOTAL: \$173,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
H B ARMSTRONG LARC/M WALLER 41-Aero Engr  
...../L CREDEUR

**NCC 1-166 Hampton University 7980**  
NASA LANGLEY AEROSPACE RESEARCH SUMMER SCHOLARS PROGRAM (LARSS)  
*Period Obligations*  
05/28/1992-05/31/1993 FY93: \$0 TOTAL: \$401,386  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D D VENABLE LARC/R L YANG 49-Engr, NEC  
J SPENCER

**NGT47-20800 Hampton University 7981**  
SUMMER FACULTY FELLOWSHIP PROGRAM IN RESEARCH  
*Period Obligations*  
01/01/1982-01/31/1994 FY93: \$2,000 TOTAL: \$2,357,671  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J W SPENCER HQ/A S MCGEE 49-Engr, NEC  
...../E T SCHWARTZ

**NAG 1-627 Longwood College 7982**  
FLOW IN COMPOUNDS THAT MODEL CRYSTAL GROWTH IN BRIGHTMAN FURNACES  
*Period Obligations*  
12/18/1985-12/31/1993 FY93: \$24,030 TOTAL: \$312,840  
*Prin. Invest. NASA Tech. Officer CASE Category*  
P G BARBER LARC/A L FRIPP 47-Materials Engr

**NAG 1-764 Norfolk State University 7983**  
SOLUTION OF ELLIPTIC PARTIAL DIFFERENTIAL EQUATION ON A MULTIPROCESSING  
*Period Obligations*  
04/21/1987-04/30/1993 FY93: \$0 TOTAL: \$381,603  
*Prin. Invest. NASA Tech. Officer CASE Category*  
S N SHAH LARC/J J LAMBIOTTE 29-Math/Computer, NEC  
...../J N SHOOSMITH

**NAG 1-1432 Norfolk State University 7984**  
DEVELOPMENT OF LABORATORY EXPERIMENTS FOR ENGINEERING MATERIALS, SCIENCE, AND TECHNOLOGY  
*Period Obligations*  
04/23/1992-04/22/1993 FY93: \$1 TOTAL: \$20,001  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J A JACOBS LARC/J E GARDNER 49-Engr, NEC  
...../R L YANG

**NASA'S UNIVERSITY PROGRAM**  
**VIRGINIA (Continued)**

**NAG 1-1453**                      **Norfolk State University**                      **7985**  
 THE GROWTH, SYNTHESIS, AND SPECTROSCOPIC  
 CHARACTERIZATION OF MATERIALS - NLPN 92-207R  
*Period*                                      *Obligations*  
 09/11/1992-10/10/1993                      FY93: \$90,727                      TOTAL: \$207,227  
*Prin. Invest.*                                      *NASA Tech. Officer*                      *CASE Category*  
 L MATTIX                                      LARC/P R YOUNG                      12-Chemistry  
 H R RIES                                      ....N BARNES

**NAG 1-423**                      **Old Dominion University**                      **7992**  
 ANALYSIS AND COMPUTATION OF INTERNAL FLOW FIELD IN A  
 SCRAMJET ENGINE  
*Period*                                      *Obligations*  
 10/19/1983-01/14/1994                      FY93: \$10,697                      TOTAL: \$379,103  
*Prin. Invest.*                                      *NASA Tech. Officer*                      *CASE Category*  
 S N TIWARI                                      LARC/A KUMAR                      41-Aero Engr  
    ....D L DWOYER

**NAG 1-1513**                      **Norfolk State University**                      **7986**  
 THE INVESTIGATION OF RADIATIVE PROPERTIES OF MOLECULAR  
 IONS NLPN 93-409  
*Period*                                      *Obligations*  
 07/27/1993-08/30/1994                      FY93: \$15,000                      TOTAL: \$15,000  
*Prin. Invest.*                                      *NASA Tech. Officer*                      *CASE Category*  
 G E MILLER                                      LARC/J H LEE                      13-Physics  
 K D SONG                                      ....W E MEADOR

**NAG 1-439**                      **Old Dominion University**                      **7993**  
 POTENTIAL USE OF AUTOMATIC PROGRAMMING TECHNOLOGY IN  
 THE PRODUCTION OF ULTRA-RELIABLE COMPUTING SYST  
*Period*                                      *Obligations*  
 01/10/1984-12/31/1993                      FY93: \$60,000                      TOTAL: \$719,034  
*Prin. Invest.*                                      *NASA Tech. Officer*                      *CASE Category*  
 C D WILD                                      LARC/D E ECKHARDT                      22-Computer Science  
 S ZEIL

**NAG 1-1536**                      **Norfolk State University**                      **7987**  
 PCI METHODS FOR SOLVING ADVECTIVE DIFFUSION EQUA- TIONS  
 ON A MULTIPROCESSING SYSTEM USING SWARTZ  
*Period*                                      *Obligations*  
 08/23/1993-08/22/1994                      FY93: \$68,636                      TOTAL: \$68,636  
*Prin. Invest.*                                      *NASA Tech. Officer*                      *CASE Category*  
 S N SHAH                                      LARC/J J LAMBIOTTE                      29-Math/Computer,NEC

**NAG 1-530**                      **Old Dominion University**                      **7994**  
 INVESTIGATION OF THE STABILITY OF LARGE VORTICES  
*Period*                                      *Obligations*  
 10/31/1984-05/15/1992                      FY93: \$0                      TOTAL: \$651,233  
*Prin. Invest.*                                      *NASA Tech. Officer*                      *CASE Category*  
 R L ASH                                      LARC/M J WALSH                      41-Aero Engr  
 C E GROSCH

**NAG 3-1371**                      **Norfolk State University**                      **7988**  
 AN NMR STUDY OF MICROVOIDS WATER-SOAKED EPOXY POLY  
 MERS  
*Period*                                      *Obligations*  
 10/01/1992-09/29/1993                      FY93: \$22,350                      TOTAL: \$89,400  
*Prin. Invest.*                                      *NASA Tech. Officer*                      *CASE Category*  
 L MATTIX                                      LERC/M A MEADOR                      47-Materials Engr

**NAG 1-633**                      **Old Dominion University**                      **7995**  
 AN INVESTIGATION OF AN EFFICIENT NUMERICAL METHOD FOR  
 SOLVING THE TRANSONIC FLOW EQUATIONS  
*Period*                                      *Obligations*  
 02/12/1986-09/15/1992                      FY93: \$1                      TOTAL: \$329,426  
*Prin. Invest.*                                      *NASA Tech. Officer*                      *CASE Category*  
 R L ASH                                      LARC/M D SALAS                      41-Aero Engr  
    ....J D KELLER

**NAG 8-257**                      **Norfolk State University**                      **7989**  
 JOVE  
*Period*                                      *Obligations*  
 01/15/1993-05/30/1994                      FY93: \$43,960                      TOTAL: \$43,960  
*Prin. Invest.*                                      *NASA Tech. Officer*                      *CASE Category*  
 L MATTIX                                      MSFC/F SIX                      99-Multi-Discip

**NAG 1-648**                      **Old Dominion University**                      **7996**  
 UNSTEADY HYBRID VORTEX TECHNIQUE FOR TRANSONIC VOR  
 TEX FLOWS AND FLUTTER APPLICATIONS  
*Period*                                      *Obligations*  
 02/20/1986-09/30/1993                      FY93: \$74,500                      TOTAL: \$423,532  
*Prin. Invest.*                                      *NASA Tech. Officer*                      *CASE Category*  
 O A KANDIL                                      LARC/K B MALONE                      41-Aero Engr  
    ....W WHITLOW

**NGT 00-090-160**                      **Norfolk State University**                      **7990**  
 EXPANDING CHROME CLUBS  
*Period*                                      *Obligations*  
 05/05/1993-02/28/1994                      FY93: \$71,579                      TOTAL: \$71,579  
*Prin. Invest.*                                      *NASA Tech. Officer*                      *CASE Category*  
 J S SHAY                                      HQ/S STOVALL-ALEXANDER                      49-Engr, NEC

**NAG 1-750**                      **Old Dominion University**                      **7997**  
 SOFTWARE RELIABILITY MODELS BASED ON PROGRAM SPACE  
 EQUIVALENCE CLASSES  
*Period*                                      *Obligations*  
 03/30/1987-10/31/1993                      FY93: \$0                      TOTAL: \$121,986  
*Prin. Invest.*                                      *NASA Tech. Officer*                      *CASE Category*  
 L WILSON                                      LARC/K J HAYHURST                      29-Math/Computer,NEC  
    ....G B FINELLI

**NAG 1-363**                      **Old Dominion University**                      **7991**  
 INSTITUTE FOR COMPUTATIONAL AND APPLIED MECHANICS  
 (ICAM)  
*Period*                                      *Obligations*  
 05/06/1983-12/31/1993                      FY93: \$108,982                      TOTAL: \$1,261,031  
*Prin. Invest.*                                      *NASA Tech. Officer*                      *CASE Category*  
 S N TIWARI                                      LARC/S E MASSENBERG                      41-Aero Engr  
    ....E J PRIOR

**NAG 1-858**                      **Old Dominion University**                      **7998**  
 PARALLEL PROCEDURES FOR STATICS, EIGENVALUE ANALYS IS  
 AND STRUCTURAL DYNAMICS  
*Period*                                      *Obligations*  
 02/24/1988-09/30/1993                      FY93: \$79,975                      TOTAL: \$277,473  
*Prin. Invest.*                                      *NASA Tech. Officer*                      *CASE Category*  
 D T NGUYEN                                      LARC/O O STORAASLI                      44-Civil Engr  
    ....S BOSTIC



**NASA'S UNIVERSITY PROGRAM  
VIRGINIA (Continued)**

**NAG 1-902 Old Dominion University 7999**  
EVALUATION AND DEVELOPMENT OF TECHNOLOGIES FOR CRE  
ATION OF RELIABLE SOFTWARE  
*Period Obligations*  
07/22/1988-12/15/1993 FY93: \$0 TOTAL: \$25,812  
*Prin. Invest. NASA Tech. Officer CASE Category*  
C M OVERSTREET LARC/G B FINELLI 29-Math/Cmputer,NEC

**NAG 1-1140 Old Dominion University 8006**  
AN INVESTIGATION OF GLOW DISCHARGE MEMBRANE SEPERATION  
OF OXYGEN FROM MARS ATMOSPHERE  
*Period Obligations*  
05/07/1990-05/15/1994 FY93: \$9,988 TOTAL: \$129,383  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R L ASH LERC/R A OUTLAW 47-Materials Engr  
....J H LEE

**NAG 1-908 Old Dominion University 8000**  
EXTREMELY HIGH DATA-RATE, RELIABLE NETWORK SYSTEMS  
RESEARCH  
*Period Obligations*  
09/02/1988-08/15/1994 FY93: \$12,153 TOTAL: \$91,141  
*Prin. Invest. NASA Tech. Officer CASE Category*  
K MALY LARC/N D MURRAY 22-Computer Science  
....W H BRYANT

**NAG 1-1150 Old Dominion University 8007**  
A CFD STUDY OF COMPLEX MISSILE AND STORE CONFIGUR-  
ATIONS IN RELATIVE MOTION.  
*Period Obligations*  
05/31/1990-05/31/1994 FY93: \$85,000 TOTAL: \$342,496  
*Prin. Invest. NASA Tech. Officer CASE Category*  
O BAYSAL LARC/D S MILLER 19-Phys Sci, NEC  
....R P BOYDEN

**NAG 1-994 Old Dominion University 8001**  
ANALYSIS AND CONTROL OF SUPERSONIC VORTEX BREAK- DOWN  
FLOWS  
*Period Obligations*  
03/17/1989-11/30/1993 FY93: \$140,000 TOTAL: \$532,334  
*Prin. Invest. NASA Tech. Officer CASE Category*  
O A KANDIL LARC/G C GREENE 13-Physics

**NAG 1-1188 Old Dominion University 8008**  
AERODYNAMIC OPTIMIZATION AND SENSITIVITY ANALYSIS USING  
COMPUTATIONAL FLUID DYNAMICS  
*Period Obligations*  
10/05/1990-05/31/1994 FY93: \$106,000 TOTAL: \$290,978  
*Prin. Invest. NASA Tech. Officer CASE Category*  
O BAYSAL LARC/D S MILLER 41-Aero Engr  
....P F COVELL

**NAG 1-1056 Old Dominion University 8002**  
LARGE ANGLE MAGNETIC SUSPENSION TEST FIXTURE  
*Period Obligations*  
08/29/1989-10/31/1993 FY93: \$49,833 TOTAL: \$178,355  
*Prin. Invest. NASA Tech. Officer CASE Category*  
C P BRITCHER LARC/N J GROOM 49-Engr, NEC

**NAG 1-1223 Old Dominion University 8009**  
NEW METHOD FOR RECOGNIZING QUADRIC SURFACES FROM  
RANGE DATA AND APPLICATION TO TELEROBOTICS AND AUTOMA  
*Period Obligations*  
02/20/1991-02/28/1994 FY93: \$75,960 TOTAL: \$218,319  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R MIELKE LARC/P W GOODE 29-Math/Cmputer,NEC

**NAG 1-1067 Old Dominion University 8003**  
POLYMER INFILTRATION STUDIES  
*Period Obligations*  
10/25/1989-09/30/1993 FY93: \$149,027 TOTAL: \$566,396  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J M MARCHELLO LARC/R M BAUCOM 43-Chem Engr  
S N TIWARI ....J B NELSON

**NAG 1-1248 Old Dominion University 8010**  
FLAT-PLATE LARGE-EDDY BREAKUP DEVICES AT HIGH REY- NOLDS  
NUMBERS/PC-BASED SEPARATED-FLOW DATA ANA  
*Period Obligations*  
03/27/1991-11/30/1992 FY93: \$0 TOTAL: \$52,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
G V SELBY LARC/S K ROBINSON 41-Aero Engr

**NAG 1-1114 Old Dominion University 8004**  
BUILDING A GENERALIZED DISTRIBUTED SYSTEM MODEL  
*Period Obligations*  
03/15/1990-12/31/1994 FY93: \$12,153 TOTAL: \$43,728  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R MUKKAMALA LARC/W H BRYANT 22-Computer Science  
E FODRIAT

**NAG 1-1265 Old Dominion University 8011**  
METHODOLOGY FOR SENSITIVITY ANALYSIS, APPROXIMATE  
ANALYSIS AND DESIGN OPTIMIZATION IN CFD FOR MULTI  
*Period Obligations*  
04/11/1991-04/14/1994 FY93: \$95,000 TOTAL: \$246,360  
*Prin. Invest. NASA Tech. Officer CASE Category*  
A C TAYLOR LARC/H E JONES 41-Aero Engr  
G W HOU ....E C YATES

**NAG 1-1117 Old Dominion University 8005**  
INVESTIGATION OF NOVEL SUSPENSIONS FOR GROUND-BASE  
TESTING AND FLEXIBLE SPACE STRUCTURE  
*Period Obligations*  
03/15/1990-09/15/1992 FY93: \$0 TOTAL: \$162,210  
*Prin. Invest. NASA Tech. Officer CASE Category*  
M CHEW LARC/J N JUANG 42-Astro Engr  
....L G HORTA

**NAG 1-1291 Old Dominion University 8012**  
ITERATIVE METHODS FOR LARGE-SCALE STATIC ANALYSIS OF  
STRUCTURES ON A SCALABLE MULTIPROCESSOR SUPERCO  
*Period Obligations*  
06/12/1991-05/31/1992 FY93: \$103 TOTAL: \$29,884  
*Prin. Invest. NASA Tech. Officer CASE Category*  
N A SOBH LARC/R E GILLIAN 44-Civil Engr  
....O O STORAASLI

**NASA'S UNIVERSITY PROGRAM**  
**VIRGINIA (Continued)**

**NAG 1-1302**                      **Old Dominion University**                      **8013**  
 VIRGINIA NETWORK FOR TECHNOLOGY  
*Period*    *Obligations*  
 07/10/1991-06/30/1994                      FY93: \$33,030                      TOTAL: \$80,864  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 E M RUDISILL                      LARC/S E MASSENBERG                      21-Mathematics

**NAG 1-1505**                      **Old Dominion University**                      **8020**  
 ASSUMED-STRESS HYBRID ELEMENTS WITH DRILLING DEGREES  
 OF FREEDOM FOR NONLINEAR ANALYSIS  
*Period*    *Obligations*  
 04/21/1993-04/15/1994                      FY93: \$39,923                      TOTAL: \$39,923  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 N KNIGHT                      LARC/A TESSLER                      46-Mech Engr

**NAG 1-1358**                      **Old Dominion University**                      **8014**  
 NONLINEAR ANALYSES OF COMPOSITE AEROSPACE STRUCTURES  
 IN SONIC FATIGUE  
*Period*    *Obligations*  
 11/19/1991-12/15/1993                      FY93: \$138,730                      TOTAL: \$254,945  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 C MEI                      LARC/S A RIZZI                      41-Aero Engr  
 U SHIRAHATTI                      ....C A POWELL

**NAG 1-1518**                      **Old Dominion University**                      **8021**  
 INSTABILITY WAVE MODELS AND SUPERSONIC JET NOISE NLPN  
 93-232  
*Period*    *Obligations*  
 05/28/1993-05/27/1994                      FY93: \$76,465                      TOTAL: \$76,465  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 S H TIWARI                      LARC/J M SEINER                      41-Aero Engr  
 T R BHAT                      ....M K PONTON

**NAG 1-1424**                      **Old Dominion University**                      **8015**  
 THEORETICAL STUDIES OF THERMAL AND ELECTRIC PROPULSION  
*Period*    *Obligations*  
 04/13/1992-05/15/1994                      FY93: \$82,640                      TOTAL: \$165,280  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 J H HEINBOCKEL                      LARC/S H CHOI                      13-Physics  
    ....E J CONWAY

**NAG 3-1329**                      **Old Dominion University**                      **8022**  
 CONVERGENCE ACCELERATION OF THE PROTEUS COMPUTER C  
 ODE WITH MULTIGRID METHODS  
*Period*    *Obligations*  
 02/19/1992-10/31/1993                      FY93: \$78,000                      TOTAL: \$139,162  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 A O DEMUREN                      LARC/J R SCOTT                      29-Math/Computer, NEC

**NAG 1-1426**                      **Old Dominion University**                      **8016**  
 DEVELOPMENT OF A CASE TOOL TO SUPPORT DECISION BASED  
 SOFTWARE DEVELOPMENT  
*Period*    *Obligations*  
 04/13/1992-09/30/1994                      FY93: \$2,000                      TOTAL: \$11,785  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 C WILD                      LARC/D E ECKHARDT                      22-Computer Science

**NAG 5-1401**                      **Old Dominion University**                      **8023**  
 OCEAN COLOR MEASUREMENTS IN COUPLED MODELS  
*Period*    *Obligations*  
 07/05/1990-12/31/1993                      FY93: \$29,000                      TOTAL: \$167,187  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 E E HOFMANN                      GSFC/C R MCCLAIN                      33-Oceanography

**NAG 1-1431**                      **Old Dominion University**                      **8017**  
 THERMAL STRUCTURAL ANALYSIS FOR CSM TESTBED NLPN  
 92-231  
*Period*    *Obligations*  
 04/17/1992-05/15/1994                      FY93: \$41,500                      TOTAL: \$64,000  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 C MEI                      LARC/J M HOUSNER                      46-Mech Engr

**NAG 5-1527**                      **Old Dominion University**                      **8024**  
 STUDIES OF PARTICLE RADIATION DAMAGE EFFECTS IN  
 SPACECRAFT INSTRUMENTATION  
*Period*    *Obligations*  
 04/08/1991-04/14/1994                      FY93: \$52,223                      TOTAL: \$150,000  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 J BECHER                      GSFC/R A KIMBLE                      13-Physics  
    ....F J REBAR

**NAG 1-1437**                      **Old Dominion University**                      **8018**  
 IMPROVED TECHNIQUES FOR VORTEX HAZARD PREDICTION NEAR  
 AIRPORTS  
*Period*    *Obligations*  
 04/28/1992-10/31/1993                      FY93: \$51,000                      TOTAL: \$81,000  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 R L ASH                      LARC/G C GREENE                      13-Physics  
    ....D D VICROY

**NAGW 3550**                      **Old Dominion University**                      **8025**  
 ASSIMILATION OF OCEAN COLOR MEASUREMENT INTO PHYSI CAL  
 BIOLOGICAL MODELS  
*Period*    *Obligations*  
 04/29/1993-02/28/1994                      FY93: \$75,000                      TOTAL: \$75,000  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 E HOFMANN                      HQ/R E MURPHY                      33-Oceanography  
    ....D M BUTLER

**NAG 1-1499**                      **Old Dominion University**                      **8019**  
 DOMAIN DECOMPOSITION FOR ANALYSIS AND OPTIMIZATION NLPN  
 93-220  
*Period*    *Obligations*  
 03/30/1993-05/31/1994                      FY93: \$45,000                      TOTAL: \$45,000  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 O BAYAAL                      LARC/D S MILLER                      41-Aero Engr  
    ....P F COVELL

**NAG10-110**                      **Old Dominion University**                      **8026**  
 ROOT GROWTH AND DEVELOPMENT IN RESPONSE CO2 STUDY  
*Period*    *Obligations*  
 07/02/1992-10/01/1993                      FY93: \$10,045                      TOTAL: \$15,652  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 F P DAY                      KSC/W M KNOTT                      51-Biological Sci

**NASA'S UNIVERSITY PROGRAM**  
**VIRGINIA (Continued)**

**NAS 1-18584 Old Dominion University 8027**  
AERODYNAMICS, FLUID MECHANICS, INSTRUMENTATION, AVIONICS,  
COMPUTING AND OTHER RELATED FIELDS  
*Period Obligations*  
11/02/1987-11/01/1992 FY93: \$343,885 TOTAL: \$7,456,475  
*Prin. Invest. NASA Tech. Officer CASE Category*  
B E WOLFSON LARC/E D PRIOR 41-Aero Engr  
....S E MASSENBERG

**NAS 1-19858 Old Dominion University 8028**  
RESEARCH IN AERODYNAMICS AND RELATED FIELDS  
*Period Obligations*  
11/05/1992-11/04/1997 FY93: \$1,362,362 TOTAL: \$1,362,362  
*Prin. Invest. NASA Tech. Officer CASE Category*  
LARC/E J PRIOR 41-Aero Engr  
....R L YANG

**NCC 1-42 Old Dominion University 8029**  
A STUDY OF PHYSICAL PROCESSES FOR SPACE - RELATED  
PROTECTION  
*Period Obligations*  
06/04/1980-12/31/1993 FY93: \$69,780 TOTAL: \$1,250,388  
*Prin. Invest. NASA Tech. Officer CASE Category*  
G S KHANDELWAL LARC/L W TOWNSEND 13-Physics  
....E J CONWAY

**NCC 1-68 Old Dominion University 8030**  
NUMERICAL SOLUTION OF AXISYMMETRIC FLOW WITH ARBITRARY  
WALL GEOMETRY  
*Period Obligations*  
05/28/1982-12/31/1993 FY93: \$36,840 TOTAL: \$419,559  
*Prin. Invest. NASA Tech. Officer CASE Category*  
S N TIWARI LARC/R E SMITH JR. 41-Aero Engr  
J S ABOLHASSANI ....J N SHOOSMITH  
M KATHONG

**NCC 1-99 Old Dominion University 8031**  
GEOMETRIC MODELING FOR COMPUTER AIDED DESIGN  
*Period Obligations*  
06/14/1985-12/31/1993 FY93: \$196,498 TOTAL: \$1,154,005  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J L SCHWING LARC/L F ROWELL 22-Computer Science  
....M L MCMILLIN

**NCC 1-120 Old Dominion University 8032**  
INVESTIGATION OF SIGNAL PROCESSING TECHNIQUES FOR  
AMBULATORY FETAL HEART RATE MONITORING  
*Period Obligations*  
01/13/1988-09/30/1991 FY93: \$0 TOTAL: \$136,593  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J W STOUGHTON LARC/D L GRAY 45-Elec Engr

**NCC 1-136 Old Dominion University 8033**  
ATAMM ENHANCEMENT AND MULTIPROCESSOR PERFORMANCE  
EVALUATION  
*Period Obligations*  
03/15/1989-12/31/1993 FY93: \$89,970 TOTAL: \$1,207,167  
*Prin. Invest. NASA Tech. Officer CASE Category*  
W STOUGHTON LARC/P J HAYES 45-Elec Engr  
R R MIELKE

**NCC 1-147 Old Dominion University 8034**  
AB INITIO ATOMIC RECOMBINATION REACTION ENERGETICS ON  
MODEL HEATSHIELD SURFACES  
*Period Obligations*  
11/28/1990-08/31/1992 FY93: \$0 TOTAL: \$77,025  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R L AKE LARC/D H PHILLIPS 12-Chemistry

**NCC 1-164 Old Dominion University 8035**  
A PORTABLE FETAL HEART MONITOR AND ITS ADAPTATION TO  
THE DETECTION OF CERTAIN PRENATAL ABNORMALITIES  
*Period Obligations*  
05/01/1992-05/15/1993 FY93: \$8,082 TOTAL: \$54,082  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D L LIVINGSTON LARC/D L GRAY 45-Elec Engr

**NCC 1-176 Old Dominion University 8036**  
FUNCTIONAL RELATIONSHIPS AMONG MONITORING PERFORM-  
ANCE: SUBJECTIVE REPORT OF THOUGHT PROCESS  
*Period Obligations*  
03/30/1993-05/15/1994 FY93: \$12,095 TOTAL: \$12,095  
*Prin. Invest. NASA Tech. Officer CASE Category*  
F G FREEMAN LARC/A T POPE 69-Psych, NEC  
M W SCERBO ....J R COMSTOCK

**NCC 1-180 Old Dominion University 8037**  
COMPUTATIONAL AND EXPERIMENTAL PARAMETRIC STUDY OF  
TRANSITION AT HIGH MACH NUMBERS  
*Period Obligations*  
05/13/1993-05/15/1994 FY93: \$35,755 TOTAL: \$35,755  
*Prin. Invest. NASA Tech. Officer CASE Category*  
G V SELBY LARC/S P WILKINSON 41-Aero Engr  
A E BLANCHARD

**NGT 00-040-009 Old Dominion University 8038**  
NATIONAL SPACE GRANT COLLEGE  
*Period Obligations*  
10/12/1989-01/31/1995 FY93: \$508,610 TOTAL: \$1,768,110  
*Prin. Invest. NASA Tech. Officer CASE Category*  
M L SANDY HQ/E T SCHWARTZ 99-Multi-Discip

**NGT 00-050-544 Old Dominion University 8039**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
05/10/1990-04/30/1992 FY93: \$0 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
G V SELBY HQ/F C OWENS 46-Mech Engr

**NGT 00-050-716 Old Dominion University 8040**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
06/25/1991-05/31/1994 FY93: \$18,750 TOTAL: \$57,250  
*Prin. Invest. NASA Tech. Officer CASE Category*  
G V SELBY HQ/F C OWENS 46-Mech Engr

**NGT 00-050-980 Old Dominion University 8041**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
07/24/1992-06/30/1994 FY93: \$22,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
A O DEMUREH LARC/E PRIOR 46-Mech Engr

**NASA'S UNIVERSITY PROGRAM**  
**VIRGINIA (Continued)**

**NGT 00-050-986 Old Dominion University 8042**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 08/20/1992-06/30/1994 FY93: \$22,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 G COATES LARC/E PRIOR 69-Psych, NEC

**NGT 00-050-987 Old Dominion University 8043**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 08/19/1992-08/14/1994 FY93: \$22,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R PROBHAKARAN LARC/E J PRIOR 46-Mech Engr

**NGT 00-051-103 Old Dominion University 8044**  
 GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 05/27/1993-06/30/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A DHARAMSI HQ/J T LYNCH 45-Elec Engr

**NGT 00-051-104 Old Dominion University 8045**  
 GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 06/22/1993-07/31/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 G S KHANDELWAL LARC/E J PRIOR 13-Physics

**NGT 00-051-164 Old Dominion University 8046**  
 GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 07/23/1993-08/31/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S TIWARI HQ/J T LYNCH 46-Mech Engr

**NGT 00-051-188 Old Dominion University 8047**  
 GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 09/01/1993-07/31/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 K H SCHOENBACH LARC/L EVANS 45-Elec Engr

**NGT 00-070-126 Old Dominion University 8048**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
 MINORITY FOCUS PROGRAM  
*Period Obligations*  
 08/08/1989-06/30/1992 FY93: \$0 TOTAL: \$40,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D T NGUYEN HQ/F C OWENS 44-Civil Engr

**NGT 00-070-189 Old Dominion University 8049**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
 MINORITY FOCUS PROGRAM  
*Period Obligations*  
 06/12/1990-05/31/1992 FY93: \$0 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 G V SELBY HQ/F C OWENS 46-Mech Engr

**NGT 00-070-231 Old Dominion University 8050**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
 MINORITY FOCUS PROGRAM  
*Period Obligations*  
 12/19/1991-12/31/1993 FY93: \$22,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S ALBIN LARC/E J PRIOR 45-Elec Engr

**NGT 00-070-232 Old Dominion University 8051**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
 MINORITY FOCUS PROGRAM  
*Period Obligations*  
 06/28/1991-06/30/1992 FY93: \$108 TOTAL: \$21,892  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 W L HARRIES HQ/F C OWENS 13-Physics

**NGT 00-070-263 Old Dominion University 8052**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
 MINORITY FOCUS PROGRAM  
*Period Obligations*  
 07/15/1992-04/30/1994 FY93: \$22,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 W L HARNES LARC/E J PRIOR 13-Physics

**NGT 00-070-296 Old Dominion University 8053**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
 MINORITY FOCUS PROGRAM  
*Period Obligations*  
 08/14/1992-06/30/1993 FY93: \$0 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J W STAUGHTON LARC/E PRIOR 45-Elec Engr

**NGT 00-070-300 Old Dominion University 8054**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
 MINORITY FOCUS PROGRAM  
*Period Obligations*  
 10/21/1992-08/31/1994 FY93: \$44,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J HUANG LARC/E J PRIOR 46-Mech Engr

**NGT 00-070-307 Old Dominion University 8055**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
 MINORITY FOCUS PROGRAM  
*Period Obligations*  
 05/23/1993-05/31/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S ALBIN HQ/J T LYNCH 45-Elec Engr

**NGT 00-070-308 Old Dominion University 8056**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
 MINORITY FOCUS PROGRAM  
*Period Obligations*  
 05/20/1993-05/31/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S ALBIN HQ/D K RUSSELL 45-Elec Engr

**NASA'S UNIVERSITY PROGRAM**  
**VIRGINIA (Continued)**

**NGT 00-090-143 Old Dominion University 8057**  
 UNDERGRADUATE STUDENT RESEARCHERS PROGRAM (UMF)  
*Period Obligations*  
 09/26/1992-08/14/1994 FY93: \$24,000 TOTAL: \$24,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 E J CROSS HQ/D K RUSSELL 99-Multi-Discip

**NGT 00-090-144 Old Dominion University 8058**  
 GSRP/UMF  
*Period Obligations*  
 09/24/1992-08/14/1993 FY93: \$0 TOTAL: \$12,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 E J CROSS HQ/D K RUSSELL 99-Multi-Discip

**NGT47-3029 Old Dominion University 8059**  
 TO SUPPORT THE SUMMER FACULTY FELLOWSHIP PROGRAM IN RESEARCH \$150,870  
*Period Obligations*  
 11/14/1969-12/31/1993 FY93: \$584,240 TOTAL: \$4,077,389  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S N TIWARI HQ/A S MCGEE 49-Engr, NEC  
 ....E T SCHWARTZ

**NGT 00-023-000 Thomas Nelson Community College 8060**  
 NGT-23000/THOMAS NELSON COMMUNITY COLL/STUDENT PROGRAMS UNDER THOMAS NELSON COMMUNITY COLL  
*Period Obligations*  
 11/05/1992-11/30/1994 FY93: \$431,917 TOTAL: \$431,917  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S FINCKE LARC/R YANG 99-Multi-Discip

**NAG 1-774 University of Richmond 8061**  
 DESIGN AND IMPLEMENTATION OF A PREPROCESSOR FOR ADA LANGUAGE TO SUPPORT USE OF MULTIWAY ACCEPT  
*Period Obligations*  
 05/14/1987-12/31/1993 FY93: \$0 TOTAL: \$240,093  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A CHARLESWORTH LARC/C M HOLLOWAY 22-Computer Science  
 ....C K WALKER

**NAG 1-242 University of Virginia 8062**  
 RESEARCH IN COMPUTER SCIENCE  
*Period Obligations*  
 11/10/1987-01/31/1994 FY93: \$0 TOTAL: \$867,250  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J M ORTEGA LARC/W H BRYANT 22-Computer Science  
 ....K A SMITH

**NAG 1-350 University of Virginia 8063**  
 STRESS EFFECTS IN MULTILAYERS  
*Period Obligations*  
 04/07/1983-11/30/1993 FY93: \$179,991 TOTAL: \$1,312,596  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 W A JESSER ARC/A L FRIPP 19-Phys Sci, NEC  
 M E ORAZEM ....I O CLARK

**NAG 1-745 University of Virginia 8064**  
 ENVIRONMENT ASSISTED DEGRADATION MECHANISMS IN ALUMINUM-LITHIUM ALLOYS  
*Period Obligations*  
 03/23/1987-12/31/1993 FY93: \$1,483,000 TOTAL: \$5,725,531  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R P GANGLOFF LARC/D L DICUS 47-Materials Engr  
 G E STONER ....D M ROYSER

**NAG 1-795 University of Virginia 8065**  
 SUPERSONIC COMBUSTION OF HYDROGEN IN AIR  
*Period Obligations*  
 07/14/1987-09/30/1993 FY93: \$377,927 TOTAL: \$2,956,513  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J C MCDANIEL LARC/G B NORTHAN 41-Aero Engr  
 ....ANTCLIFF

**NAG 1-841 University of Virginia 8066**  
 OUT OF PLANE GRADIENTS IN LAMINATED COMPOSITE STRUCTURES  
*Period Obligations*  
 12/23/1987-12/31/1993 FY93: \$1 TOTAL: \$196,798  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 C T HERAKOVICH LARC/J H STARNES JR. 41-Aero Engr

**NAG 1-1013 University of Virginia 8067**  
 ANALYSIS OF HIGH SPEED FLOW, THERMAL AND STRUCTURAL INTERACTIONS  
*Period Obligations*  
 06/05/1989-12/31/1993 FY93: \$119,928 TOTAL: \$995,212  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 E A THORNTON LARC/A R WIETING 49-Engr, NEC

**NAG 1-1112 University of Virginia 8068**  
 ALGORITHMS FOR PARALLEL AND VECTOR COMPUTATION  
*Period Obligations*  
 03/07/1990-02/28/1994 FY93: \$30,000 TOTAL: \$114,987  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J M ORTEGA LARC/A L OVERMAN 29-Math/Computer, NEC  
 ....J J LAMBIOTTE

**NAG 1-1123 University of Virginia 8069**  
 SOFTWARE FAULT TOLERANCE USING DATA DIVERSITY  
*Period Obligations*  
 04/02/1990-03/31/1994 FY93: \$83,600 TOTAL: \$327,075  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J C KNIGHT LARC/D E ECKHARDT 22-Computer Science

**NAG 1-1162 University of Virginia 8070**  
 TRANSVERSRE STRESSES IN LAMINATED COMPOSITE PANELS (FDP)  
*Period Obligations*  
 07/11/1990-08/31/1994 FY93: \$40,000 TOTAL: \$279,201  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A K NOOR LARC/J H STARNES 41-Aero Engr

**NAG 1-1180 University of Virginia 8071**  
 NONLINEAR ANALYSIS AND MODELING OF TIRES  
*Period Obligations*  
 09/17/1990-12/31/1993 FY93: \$27,088 TOTAL: \$165,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A K NOOR LARC/J A TANNER 46-Mech Engr  
 ....M P ROBINSON

**NAG 1-1197 University of Virginia 8072**  
 COMPUTATIONAL STRATEGY FOR PREDICTING THE DYNAMIC RESPONSE OF COMPOSITE STRUCTURES DURING IMPACT-FDP  
*Period Obligations*  
 11/09/1990-11/07/1993 FY93: \$65,001 TOTAL: \$189,001  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A K NOOR LARC/H D GARDEN 44-Civil Engr

**NASA'S UNIVERSITY PROGRAM**  
**VIRGINIA (Continued)**

**NAG 1-1239**                      **University of Virginia**                      **8073**  
SPECTROSCOPIC MONITORING OF O2 - FDP  
*Period*    *Obligations*  
02/28/1991-12/31/1992                      FY93: \$1,453                      TOTAL: \$66,229  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
T F GALLAGHER                      LARC/G B NORTHAM                      41-Aero Engr

**NAG 3-909**                      **University of Virginia**                      **8080**  
MAGNETIC ACTUATORS AND SUSPENSION FOR SPACE VIBRATION  
*Period*    *Obligations*  
05/26/1988-04/17/1992                      FY93: \$501                      TOTAL: \$196,934  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
P E ALLAIRE                      LERC/D P FLEMING                      46-Mech Engr  
D W LEWIS                      ....G V BROWN  
R D WILLIAMS

**NAG 1-1434**                      **University of Virginia**                      **8074**  
DESIGN OF HIGH PERFORMANCE OPTICAL DETECTOR SYSTEM FOR THE NASA SUNLITE PROJECT - FDP  
*Period*    *Obligations*  
04/29/1992-05/31/1993                      FY93: \$1                      TOTAL: \$10,001  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
E D TOWE                      LARC/P I CARRAWAY                      45-Elec Engr

**NAG 3-1319**                      **University of Virginia**                      **8081**  
MICROMECHANICAL MODELLING OF GRAPHITE/COPPER COMPO SITES UNDER THERMOMECHANICAL LOADING  
*Period*    *Obligations*  
01/29/1992-05/31/1994                      FY93: \$52,000                      TOTAL: \$109,421  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
M J PINDERER                      LERC/R V MINER                      47-Materials Engr

**NAG 1-1529**                      **University of Virginia**                      **8075**  
RESEARCH IN PARALLEL COMPUTING  
*Period*    *Obligations*  
07/12/1993-07/08/1994                      FY93: \$35,000                      TOTAL: \$35,000  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
J M ORTEGA                      LARC/J J LAMBIOTTE                      22-Computer Science

**NAG 3-1334**                      **University of Virginia**                      **8082**  
HIGH PERFORMANCE MAGNETIC BEARINGS FOR AERO APPLIC AITONS  
*Period*    *Obligations*  
03/03/1992-07/22/1994                      FY93: \$202,324                      TOTAL: \$267,324  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
P E ALLAIRE                      LERC/G V BROWN                      46-Mech Engr  
C R KNOSPE  
E H MASLEN

**NAG 2-721**                      **University of Virginia**                      **8076**  
PERCEPTUAL ADAPTATION IN THE USE OF NIGHT VISION GOGGLES  
*Period*    *Obligations*  
07/03/1991-05/31/1992                      FY93: \$0                      TOTAL: \$19,997  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
D R PROFFITT                      ARC/M K KAISER                      69-Psych, NEC  
F DURGIN

**NAG 3-1356**                      **University of Virginia**                      **8083**  
RISK RANKING METHODOLOGY FOR DESIGN EVALUATION OF THE SPACE STATION  
*Period*    *Obligations*  
06/10/1992-02/15/1993                      FY93: \$45,000                      TOTAL: \$95,000  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
Y Y HAIMES                      LERC/J R REAGAN                      49-Engr, NEC  
D LI                      ....W F FORD  
J PET-EDWARDS

**NAG 2-812**                      **University of Virginia**                      **8077**  
PERCEPTUAL ADAPTATION IN THE USE OF NIGHT VISION G OGGLS  
*Period*    *Obligations*  
11/23/1992-06/30/1993                      FY93: \$20,000                      TOTAL: \$20,000  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
D R PROFFITT                      ARC/M K KAISER                      69-Psych, NEC  
....C A SMITH

**NAG 3-1377**                      **University of Virginia**                      **8084**  
MICROMECHANICS OF ADVANCED MULTI-PHASED AND FUNCTION ALLY GRADED COMPOSITES  
*Period*    *Obligations*  
11/02/1992-10/31/1993                      FY93: \$85,652                      TOTAL: \$85,652  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
M PINDERER                      LERC/S M ARNOLD                      41-Aero Engr

**NAG 2-845**                      **University of Virginia**                      **8078**  
MEASURING FRAME RATE AND TRACKING REQUIREMENTS IN VI RTUAL ENVIRONMENTS  
*Period*    *Obligations*  
06/10/1993-06/30/1994                      FY93: \$50,000                      TOTAL: \$50,000  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
R PAUSCH                      ARC/T A LASINSKI                      22-Computer Science  
....A VAZIRI

**NAG 3-1396**                      **University of Virginia**                      **8085**  
THE EFFECTS OF CONVECTION ON THE THERMOCAPILLARY M OTION OF DEORMABLE DROPS IN CYLINDRICAL CONTAINER  
*Period*    *Obligations*  
12/04/1992-11/30/1993                      FY93: \$84,501                      TOTAL: \$84,501  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
H HAJ-HARIIRI                      LERC/J A SALZMAN                      46-Mech Engr

**NAG 2-872**                      **University of Virginia**                      **8079**  
1993 INTERNATIONAL SEMICONDUCTOR DEVICE RESEARCH S YMPOSIUM (ISDRS-93)  
*Period*    *Obligations*  
08/19/1993-02/28/1994                      FY93: \$5,000                      TOTAL: \$5,000  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
M SHUR                      ARC/J LARIMER                      45-Elec Engr

**NAG 3-1518**                      **University of Virginia**                      **8086**  
FREE STREAM VITIATION EFFECTS ON SUPERSONIC COMBUS TION OF HYDROGEN IN AIR  
*Period*    *Obligations*  
09/10/1993-02/23/1994                      FY93: \$228,938                      TOTAL: \$228,938  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
R H KRAUSS                      LERC/S R THOMAS                      41-Aero Engr  
J C MCDANIEL                      ....C J TREFNY  
H K CHELLIAH

**NASA'S UNIVERSITY PROGRAM**  
**VIRGINIA (Continued)**

**NAG 5-700**                      **University of Virginia**                      **8087**  
 ULTRAVIOLET IMAGING TELESCOPE ASTRONOMICAL  
 OBSERVATIONS  
*Period*                      *Obligations*  
 09/01/1985-07/14/1994      FY93: \$0      TOTAL: \$713,358  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 R W O CONNELL      GSFC/T P STECHER      11-Astronomy  
                                  ....G R BAKER

**NAG 5-865**                      **University of Virginia**                      **8088**  
 MICROGRAVITY NUCLEATION AND PARTICLE COAGULATION  
 EXPERIMENT SUPPORT  
*Period*                      *Obligations*  
 01/01/1987-06/30/1994      FY93: \$57,641      TOTAL: \$310,884  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 L U LILLELEHT      GSFC/J A NUTH      19-Phys Sci, NEC  
                                  ....J E ALLEN

**NAG 5-1018**                      **University of Virginia**                      **8089**  
 FOREST ECOSYSTEMS DYNAMICS  
*Period*                      *Obligations*  
 10/15/1987-03/14/1994      FY93: \$99,613      TOTAL: \$457,079  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 H H SHUGART      GSFC/D L WILLIAMS      39-Env Sci, NEC

**NAG 5-1445**                      **University of Virginia**                      **8090**  
 ANISOTROPIC CONTINUUM EMISSION IN SEYFERTS  
*Period*                      *Obligations*  
 08/17/1990-09/14/1992      FY93: \$0      TOTAL: \$26,500  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 D M WHITTLE      GSFC/D WEST      11-Astronomy

**NAG 5-1577**                      **University of Virginia**                      **8091**  
 COOLING FLOW CLUSTERS WITH EVIDENCE FOR STAR FORMATION; A DETAILED STUDY OF THE X-RAY EMISSION FROM  
*Period*                      *Obligations*  
 05/02/1991-03/14/1993      FY93: \$0      TOTAL: \$40,000  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 C L SARAZIN      GSFC/R PETRE      11-Astronomy

**NAG 5-1877**                      **University of Virginia**                      **8092**  
 AGE CALIBRATION OF MG II CHROMOSPHERIC EMISSION  
*Period*                      *Obligations*  
 01/23/1992-01/31/1994      FY93: \$0      TOTAL: \$6,992  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 R W O'CONNELL      GSFC/D WEST      11-Astronomy

**NAG 5-1891**                      **University of Virginia**                      **8093**  
 COOLING FLOW CLUSTERS WITH EVIDENCE FOR STAR FORMATION AND/OR COOL GAS  
*Period*                      *Obligations*  
 02/10/1992-02/14/1994      FY93: \$50,000      TOTAL: \$83,000  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 C L SARAZIN      GSFC/R PETRE      11-Astronomy

**NAG 5-1961**                      **University of Virginia**                      **8094**  
 INTERDISCIPLINARY RESEARCH SCENARIO TESTING OF EOS DIS, VERSION O - SERIES 2  
*Period*                      *Obligations*  
 04/03/1992-04/14/1993      FY93: \$0      TOTAL: \$105,960  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 M GARSTANG      GSFC/STOCKEY      39-Env Sci, NEC  
 G D EMMITT

**NAG 5-1978**                      **University of Virginia**                      **8095**  
 INTENSIVE BOUNDARY LAYER WATER CYCLE STUDY IN THE WESTERN EQUATORIAL PACIFIC - ATMOSPHERIC WATER. .  
*Period*                      *Obligations*  
 05/04/1992-05/14/1994      FY93: \$28,796      TOTAL: \$48,998  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 M GARSTANG      GSFC/O W THIELE      31-Atmos Sci

**NAG 5-2060**                      **University of Virginia**                      **8096**  
 X-RAY EMISSION FROM ULTRALUMINOUS INFRARED GALAXIE S  
*Period*                      *Obligations*  
 07/28/1992-08/14/1994      FY93: \$0      TOTAL: \$30,002  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 T X THUAN      GSFC/R PETRE      11-Astronomy

**NAG 5-2061**                      **University of Virginia**                      **8097**  
 TRMM ATMOSPHERIC BUDGET STUDY  
*Period*                      *Obligations*  
 08/05/1992-08/14/1994      FY93: \$75,000      TOTAL: \$150,701  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 M GARSTANG      GSFC/O W THIELE      31-Atmos Sci

**NAG 5-2295**                      **University of Virginia**                      **8098**  
 MULTIDISCIPLINE INTEGRATIVE MODELS OF FOREST ECOSY STEM DYNAMICS FOR THE BOREAL FOREST BIOME  
*Period*                      *Obligations*  
 06/17/1993-06/30/1994      FY93: \$24,989      TOTAL: \$24,989  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 H H SHUGART      GSFC/F G HALL      39-Env Sci, NEC  
                                  ....P SELLERS

**NAGW 186**                      **University of Virginia**                      **8099**  
 SPUTTERING EFFECTS ON THE JOVIAN SATELLITES AND RINGS  
*Period*                      *Obligations*  
 04/15/1981-10/31/1993      FY93: \$44,000      TOTAL: \$440,889  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 R E JOHNSON      HQ/J T UNDERWOOD      32-Geological Sci  
                                  ....J M BOYCE

**NAGW 461**                      **University of Virginia**                      **8100**  
 COLLISIONS OF IMPORTANCE IN THE IO PLASMA TONS  
*Period*                      *Obligations*  
 09/01/1983-11/30/1993      FY93: \$69,161      TOTAL: \$399,709  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 R E JOHNSON      HQ/J T BERGSTRALH      31-Atmos Sci  
                                  ....W L QUAIDE

**NAGW 1233**                      **University of Virginia**                      **8101**  
 EVOLUTION OF CALCIUM MODULATED PROTEINS  
*Period*                      *Obligations*  
 11/04/1987-02/28/1994      FY93: \$29,990      TOTAL: \$278,170  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 R H KRETSINGER      HQ/J D RUMMEL      51-Biological Sci

# NASA'S UNIVERSITY PROGRAM VIRGINIA (Continued)

**NAGW 1510** **University of Virginia** **8102**  
NUMERICAL STUDIES IN HIGH ENERGY ASTROPHYSICAL GAS DYNAMICS  
*Period* *Obligations*  
11/29/1988-12/31/1993 FY93: \$75,000 TOTAL: \$234,108  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J F HAWLEY HQ/L J KALUZIENSKI 11-Astronomy  
S A BALBUS ....A N BUNNER

**NAGW 2282** **University of Virginia** **8109**  
SURFACE-ATMOSPHERE INTERACTION  
*Period* *Obligations*  
11/01/1990-10/31/1993 FY93: \$20,000 TOTAL: \$60,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
A D HOWARD HQ/T A MAXWELL 32-Geological Sci

**NAGW 1692** **University of Virginia** **8103**  
INTELLIGENT PROCESSING OF MATERIALS FOR DESIGN AND MANUFACTURING  
*Period* *Obligations*  
03/17/1989-10/31/1994 FY93: \$2,787,964 TOTAL: \$5,441,381  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
H N WADLEY HQ/S L VENNERT 47-Materials Engr  
T H COURTNEY ....T CROOKER  
J A WERT

**NAGW 2313** **University of Virginia** **8110**  
A COMPREHENSIVE INVESTIGATION OF COMET ORIGINS  
*Period* *Obligations*  
06/13/1991-10/31/1993 FY93: \$25,000 TOTAL: \$75,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
B DONN HQ/J A NUTH 19-Phys Sci, NEC

**NAGW 1733** **University of Virginia** **8104**  
LABORATORY REFLECTANCE SPECTRA OF IRRADIATED ICES  
*Period* *Obligations*  
04/17/1989-10/31/1991 FY93: \$1,544 TOTAL: \$65,456  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J W BORING HQ/T A MAXWELL 32-Geological Sci

**NAGW 2376** **University of Virginia** **8111**  
EMISSION PROCESSES AND DYNAMICS OF HOT GASES IN ASTROPHYSICS  
*Period* *Obligations*  
03/22/1991-01/31/1994 FY93: \$150,000 TOTAL: \$450,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R A CHEVALIER HQ/G S KUTTER 11-Astronomy  
....G R RIEGLER

**NAGW 1926** **University of Virginia** **8105**  
GROUNDWATER AND PERMAFROST PROCESSES ON MARS  
*Period* *Obligations*  
03/05/1990-10/31/1993 FY93: \$51,200 TOTAL: \$138,200  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
A D HOWARD HQ/T A MAXWELL 32-Geological Sci

**NAGW 2377** **University of Virginia** **8112**  
SIS MIXER AND SCHOTT VARACTOR ELEMENTS FOR NASA SUBMILLIMETER  
*Period* *Obligations*  
03/18/1991-12/31/1993 FY93: \$105,000 TOTAL: \$310,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
A W LICHTENBERGER HQ/M BICAY 13-Physics

**NAGW 2046** **University of Virginia** **8106**  
PLASMA SOURCE DISTRIBUTIONS IN THE INNER SATURNIAN MAGNETOSPHERE  
*Period* *Obligations*  
05/05/1990-03/31/1994 FY93: \$48,000 TOTAL: \$140,240  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R E JOHNSON HQ/M M MELLOTT 13-Physics  
....T PERRY

**NAGW 2596** **University of Virginia** **8113**  
NAGW-2596/UNIV VIRGINIA/A LOCAL PERSPECTIVE ON GALAXY EVOLUTION IN THE EARLY UNIVERSE  
*Period* *Obligations*  
08/20/1991-04/30/1994 FY93: \$181,600 TOTAL: \$518,815  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R W O'CONNELL HQ/G S KUTTER 11-Astronomy  
....G R RIEGLER

**NAGW 2050** **University of Virginia** **8107**  
NAGW-2050/UNIV OF VIRGINIA/ADVANCED CONCEPTS FOR METALLIC CRYOTHERMAL SPACE STRUCTURES  
*Period* *Obligations*  
04/06/1990-05/30/1993 FY93: \$72,000 TOTAL: \$322,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
W D PILKEY HQ/T W CROOKER 47-Materials Engr  
R P GANGLOFF ....D R MULVILLE  
E A THORTON

**NAGW 3021** **University of Virginia** **8114**  
ADVANCED COMPUTATIONAL METHODS FOR THE NUMERICAL SOLUTION TO METEOROLOGICAL FLOW PROBLEMS  
*Period* *Obligations*  
03/30/1992-09/30/1993 FY93: \$90,000 TOTAL: \$140,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J J DORNING HQ/K H BERGMAN 31-Atmos Sci  
....R A SCHIFFER

**NAGW 2217** **University of Virginia** **8108**  
SOCIETY FOR RESEARCH ON BIOLOGICAL RHYTHMS  
*Period* *Obligations*  
08/30/1990-06/30/1993 FY93: \$0 TOTAL: \$5,500  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
D HUDSON HQ/J H STOKLOSA 51-Biological Sci

**NAGW 3157** **University of Virginia** **8115**  
SUPPORT FOR THE 3RD MEETING OF THE SOCIETY FOR RESEARCH ON BIOLOGICAL RHYTHMS  
*Period* *Obligations*  
08/10/1992-04/30/1993 FY93: \$0 TOTAL: \$10,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
D J HUDSON HQ/J H STOKLOSA 51-Biological Sci



**NASA'S UNIVERSITY PROGRAM**  
**VIRGINIA (Continued)**

**NAS 3-26571 University of Virginia 8116**  
 ALGORITHM FOR OPTIMIZATION F RESIDUAL STRESSES IN MMC  
 USING THE MULTIPLE COMPLAINT INTERFACIAL LAYER  
*Period Obligations*  
 03/02/1992-12/02/1994 FY93: \$114,539 TOTAL: \$206,755  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M J PINDER A LERC/S M ARNOLD 46-Mech Engr

**NAS 5-30787 University of Virginia 8117**  
 EOS SYNTHETIC APERATURE RADAR (SAR) INVESTIGATION  
*Period Obligations*  
 02/12/1990-08/31/1992 FY93: \$0 TOTAL: \$55,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 H H SHUGART GSFC/D WILLIAMS 19-Phys Sci, NEC

**NCA 2-468 University of Virginia 8118**  
 FRAMEWORKS IN PERSEPTION  
*Period Obligations*  
 12/19/1989-01/14/1992 FY93: \$0 TOTAL: \$80,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D R PROFFITT ARC/M K KAISER 51-Biological Sci

**NCA 2-708 University of Virginia 8119**  
 EXTRACTING DEPTH FROM MOTION IN STRUCTURED AND IMP  
 OVERISHED TERRAINS  
*Period Obligations*  
 05/01/1992-04/30/1994 FY93: \$40,000 TOTAL: \$70,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D PROFFITT ARC/M K KAISER 69-Psych, NEC

**NCC 1-106 University of Virginia 8120**  
 CONVECTIVE TRANSPORTS OVER THE AMAZON BASIN  
*Period Obligations*  
 06/30/1986-03/30/1994 FY93: \$0 TOTAL: \$567,256  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M GARSTANG LARC/J W DREWRY 31-Atmos Sci  
 ....J M HOELL

**NCC 1-173 University of Virginia 8121**  
 AN INTEGRATED DESIGN METHODOLOGY BASED ON THE VHSIC  
 HARDWARE DESCRIPTION LANGUAGE  
*Period Obligations*  
 03/16/1993-03/15/1994 FY93: \$35,000 TOTAL: \$35,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 B W JOHNSON LARC/C R ELKS 22-Computer Science  
 J H AYLOR

**NCCW 11 University of Virginia 8122**  
 CENTER FOR COMPUTATIONAL STRUCTURES TECHNOLOGY  
*Period Obligations*  
 07/12/1990-06/30/1994 FY93: \$415,000 TOTAL: \$1,257,955  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A K NOOR HQ/S L VENNERI 49-Engr, NEC

**NGT 00-030-028 University of Virginia 8123**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
 11/02/1990-08/31/1993 FY93: \$0 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J F WEISHAMPEL HQ/G ASRAR 39-Env Sci, NEC

**NGT 00-030-157 University of Virginia 8124**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
 11/02/1992-08/31/1994 FY93: \$44,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M A LEFSKY HQ/G ASRAR 39-Env Sci, NEC  
 ....D E WICKLAND

**NGT 00-050-334 University of Virginia 8125**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 07/19/1988-01/31/1993 FY93: \$0 TOTAL: \$80,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 L U LILLELEHT HQ/F C OWENS 43-Chem Engr

**NGT 00-050-568 University of Virginia 8126**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 07/09/1990-05/31/1993 FY93: \$0 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J J DORING HQ/F C OWENS 13-Physics

**NGT 00-050-578 University of Virginia 8127**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 06/20/1990-12/31/1994 FY93: \$11,000 TOTAL: \$77,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 B W JOHNSON HQ/F C OWENS 45-Elec Engr

**NGT 00-050-647 University of Virginia 8128**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 07/02/1990-06/30/1994 FY93: \$0 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S H JONES HQ/F C OWENS 45-Elec Engr

**NGT 00-050-648 University of Virginia 8129**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 07/24/1990-06/30/1993 FY93: \$0 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 H H SHUGART HQ/F C OWENS 39-Env Sci, NEC

**NGT 00-050-714 University of Virginia 8130**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 07/02/1991-06/30/1994 FY93: \$18,750 TOTAL: \$62,750  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 G LAUFER HQ/F C OWENS 46-Mech Engr

**NGT 00-050-722 University of Virginia 8131**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 05/10/1991-06/30/1994 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M GARSTANG HQ/F C OWENS 39-Env Sci, NEC

**NASA'S UNIVERSITY PROGRAM**  
**VIRGINIA (Continued)**

**NGT 00-050-725 University of Virginia 8132**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 04/25/1991-06/30/1994 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 T W CROWE HQ/F C OWENS 45-Elec Engr

**NGT 00-050-905 University of Virginia 8140**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 05/21/1992-06/30/1994 FY93: \$22,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R BARAGIOLA HQ/J ALEXANDER 49-Engr, NEC

**NGT 00-050-750 University of Virginia 8133**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 05/10/1991-06/30/1994 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A L MILLS HQ/F C OWENS 39-Env Sci, NEC

**NGT 00-050-906 University of Virginia 8141**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 05/21/1992-08/31/1994 FY93: \$22,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R A BARAGIOLA HQ/J ALEXANDER 49-Engr, NEC

**NGT 00-050-775 University of Virginia 8134**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 06/10/1991-06/30/1993 FY93: \$0 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S A MACKO HQ/F C OWENS 12-Chemistry

**NGT 00-050-941 University of Virginia 8142**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 07/09/1992-06/30/1994 FY93: \$22,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 C R KNOSPE LERC/F MONTEGANI 46-Mech Engr

**NGT 00-050-793 University of Virginia 8135**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 06/27/1991-06/30/1993 FY93: \$0 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J J DORNING HQ/F C OWENS 49-Engr, NEC

**NGT 00-050-970 University of Virginia 8143**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 06/15/1992-06/30/1994 FY93: \$22,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A S GRIMSHAW HQ/P HUNTER 22-Computer Science

**NGT 00-050-820 University of Virginia 8136**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 06/25/1991-06/30/1994 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A W LICHTENBERGER HQ/F C OWENS 45-Elec Engr

**NGT 00-051-018 University of Virginia 8144**  
 GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 05/14/1993-06/30/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J C FRENCH GSFC/G SOFFEN 22-Computer Science

**NGT 00-050-821 University of Virginia 8137**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 06/25/1991-06/30/1994 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J J DORNING HQ/F C OWENS 13-Physics

**NGT 00-051-055 University of Virginia 8145**  
 GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 07/25/1993-08/31/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 N NANDHAKUMAR HQ/J T LYNCH 45-Elec Engr

**NGT 00-050-834 University of Virginia 8138**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 06/25/1991-07/31/1993 FY93: \$0 TOTAL: \$33,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 T F GALLAGHER HQ/F C OWENS 45-Elec Engr

**NGT 00-051-063 University of Virginia 8146**  
 GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 06/01/1993-06/30/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J J DORNING HQ/G LESANE 13-Physics

**NGT 00-050-897 University of Virginia 8139**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 08/18/1992-06/30/1994 FY93: \$22,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J C MCDANIEL LARC/E PRIOR 41-Aero Engr

**NGT 00-051-068 University of Virginia 8147**  
 GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 06/15/1993-06/30/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 E TOWE HQ/G LASANE 45-Elec Engr

**NASA'S UNIVERSITY PROGRAM**  
**VIRGINIA (Continued)**

**NGT 00-051-094 University of Virginia 8148**  
 GRADUATE STUDENT RESEARCHERS (UMF) PROGRAM  
*Period Obligations*  
 07/07/1993-06/30/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 L U LILLEHEHET GSFC/M BURRELL 43-Chem Engr

**NGT 00-070-166 University of Virginia 8155**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
 MINORITY FOCUS PROGRAM  
*Period Obligations*  
 09/21/1989-12/31/1992 FY93: \$0 TOTAL: \$62,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R J MATTAUCH HQ/F C OWENS 45-Elec Engr

**NGT 00-051-114 University of Virginia 8149**  
 GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 05/27/1993-06/30/1994 FY93: \$12,500 TOTAL: \$12,500  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 E A THORNTON LARC/E J PRIOR 49-Engr, NEC

**NGT 00-070-173 University of Virginia 8156**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
 MINORITY FOCUS PROGRAM  
*Period Obligations*  
 07/05/1990-05/31/1993 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J L HUDSON HQ/F C OWENS 43-Chem Engr

**NGT 00-051-163 University of Virginia 8150**  
 GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 06/22/1993-06/30/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A S GRIMSHAW HQ/P HUNTER 22-Computer Science

**NGT 00-070-174 University of Virginia 8157**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
 MINORITY FOCUS PROGRAM  
*Period Obligations*  
 09/12/1990-08/31/1992 FY93: \$3,978 TOTAL: \$40,022  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J M ORTEGA HQ/F C OWENS 29-Math/Cmputer,NEC

**NGT 00-070-123 University of Virginia 8151**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
 MINORITY FOCUS PROGRAM  
*Period Obligations*  
 09/15/1989-07/31/1992 FY93: \$0 TOTAL: \$62,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J M ORTEGA HQ/J T LYNCH 21-Mathematics

**NGT 00-070-198 University of Virginia 8158**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
 MINORITY FOCUS PROGRAM  
*Period Obligations*  
 07/11/1990-05/31/1993 FY93: \$0 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 B W JOHNSON HQ/J ALEXANDER 45-Elec Engr

**NGT 00-070-127 University of Virginia 8152**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
 MINORITY FOCUS PROGRAM  
*Period Obligations*  
 07/31/1989-01/31/1993 FY93: \$0 TOTAL: \$73,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 W D PILKEY HQ/F C OWENS 49-Engr, NEC

**NGT 00-070-229 University of Virginia 8159**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
 MINORITY FOCUS PROGRAM  
*Period Obligations*  
 07/02/1991-06/30/1994 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J M ORTEGA HQ/F C OWENS 29-Math/Cmputer,NEC

**NGT 00-070-163 University of Virginia 8153**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
 MINORITY FOCUS PROGRAM  
*Period Obligations*  
 09/15/1989-08/31/1993 FY93: \$0 TOTAL: \$62,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J M ORTEGA HQ/F C OWENS 29-Math/Cmputer,NEC

**NGT 00-070-230 University of Virginia 8160**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
 MINORITY FOCUS PROGRAM  
*Period Obligations*  
 06/05/1991-06/30/1994 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 W D PILKEY HQ/F C OWENS 44-Civil Engr

**NGT 00-070-164 University of Virginia 8154**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
 MINORITY FOCUS PROGRAM  
*Period Obligations*  
 09/18/1989-08/31/1993 FY93: \$0 TOTAL: \$62,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J M ORTEGA HQ/F C OWENS 29-Math/Cmputer,NEC

**NGT 00-070-286 University of Virginia 8161**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
 MINORITY FOCUS PROGRAM  
*Period Obligations*  
 07/09/1992-06/30/1994 FY93: \$22,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J C FRENCH HQ/D K RUSSELL 22-Computer Science

**NASA'S UNIVERSITY PROGRAM**  
**VIRGINIA (Continued)**

**NGT 00-070-294 University of Virginia 8162**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
 MINORITY FOCUS PROGRAM  
*Period Obligations*  
 08/04/1992-07/31/1994 FY93: \$22,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 H HAJ-HARIRI LARC/J T LYNCH 46-Mech Engr

**NGT 00-070-336 University of Virginia 8163**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
 MINORITY FOCUS PROGRAM  
*Period Obligations*  
 07/05/1993-06/30/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 E TOWE HQ/D K RUSSELL 45-Elec Engr

**NGT 00-070-339 University of Virginia 8164**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
 MINORITY FOCUS PROGRAM  
*Period Obligations*  
 06/30/1993-06/30/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 T PETERSON HQ/D K RUSSELL 21-Mathematics

**NGT 00-070-365 University of Virginia 8165**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
 MINORITY FOCUS PROGRAM  
*Period Obligations*  
 09/08/1993-08/31/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D BALL HQ/D K RUSSELL 79-Soc Sci, NEC

**NGT 00-090-214 University of Virginia 8166**  
 UNDERGRADUATE STUDENT RESEARCHERS (UMF) PROGRAM  
*Period Obligations*  
 09/23/1993-08/14/1994 FY93: \$12,000 TOTAL: \$12,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R JENNINGS HQ/D K RUSSELL 99-Multi-Discip

**NAG 1-168 Va Polytechnic Inst & St Univ 8167**  
 STRUCTURAL OPTIMIZATION FOR IMPROVED DAMAGE  
 TOLERANCE  
*Period Obligations*  
 04/03/1981-12/15/1993 FY93: \$120,730 TOTAL: \$1,023,441  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R T HAFTKA LARC/J H STARNES JR. 41-Aero Engr

**NAG 1-224 Va Polytechnic Inst & St Univ 8168**  
 AUTOMATED SIZING OF AEROSPACE STRUCTURES UNDER  
 MULTIPLE CONSTRAINTS  
*Period Obligations*  
 10/16/1981-11/30/1993 FY93: \$82,001 TOTAL: \$986,942  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R T HAFTKA LARC/H M ADELMAN 41-Aero Engr  
 W L HALLAUER

**NAG 1-225 Va Polytechnic Inst & St Univ 8169**  
 IDENTIFICATION AND CONTROL OF A BEAM IN SPACE  
*Period Obligations*  
 11/30/1981-08/15/1993 FY93: \$0 TOTAL: \$566,261  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 L MEIROVITCH LARC/J P WILLIAMS 42-Astro Engr  
 H BARAH ....S L WELCH

**NAG 1-343 Va Polytechnic Inst & St Univ 8170**  
 NASA MATERIALS SCIENCE AND ENGINEERING PROGRAM  
*Period Obligations*  
 03/04/1983-12/31/1993 FY93: \$667,376 TOTAL: \$8,061,984  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 F W STEPHENSON LARC/D R TENNEY 47-Materials Engr  
 ....R T SWANN

**NAG 1-390 Va Polytechnic Inst & St Univ 8171**  
 AN ANALYTICAL INVESTIGATION SYNCROPHASING AS MEANS OF  
 AIRCRAFT INTERIOR NOISE CONTROL  
*Period Obligations*  
 08/01/1983-01/14/1994 FY93: \$160,668 TOTAL: \$1,025,022  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 C R FULLER LARC/R J SILCOX 41-Aero Engr  
 ....H C LESTER

**NAG 1-537 Va Polytechnic Inst & St Univ 8172**  
 POSTBUCKLING AND CRIPPLING OF GRAPHITE-EPOXY CHANNEL  
 AND ZEE SECTION COLUMNS  
*Period Obligations*  
 10/31/1984-10/31/1993 FY93: \$50,340 TOTAL: \$357,177  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 E R JOHNSON LARC/J H STARNES JR 41-Aero Engr

**NAG 1-643 Va Polytechnic Inst & St Univ 8173**  
 DESIGN OF ANISOTROPIC PLATES FOR IMPROVED DAMAGE T  
 OLERANCE  
*Period Obligations*  
 02/12/1986-12/15/1993 FY93: \$54,710 TOTAL: \$275,203  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 Z GURDAL LARC/J H STARNES 41-Aero Engr  
 ....M J SHUART

**NAG 1-675 Va Polytechnic Inst & St Univ 8174**  
 DEVELOPMENT AND VERIFICATION OF LOCAL/GLOBAL ANALY- SIS  
 TECHNIQUES FOR LAMINATED COMPOSITES  
*Period Obligations*  
 04/24/1986-12/31/1992 FY93: \$1,803 TOTAL: \$181,391  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 O H GRIFFIN JR LARC/N F KNIGHT JR 41-Aero Engr  
 ....W J STROUD

**NAG 1-776 Va Polytechnic Inst & St Univ 8175**  
 COMPUTATIONAL FLUID DYNAMICS RESEARCH IN HYPER- SONIC  
 FLOW  
*Period Obligations*  
 06/04/1987-11/30/1993 FY93: \$60,000 TOTAL: \$769,831  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R W WALTERS LARC/D H RUDY 41-Aero Engr  
 B GROSSMAN ....J L THOMAS

**NASA'S UNIVERSITY PROGRAM**  
**VIRGINIA (Continued)**

**NAG 1-859**      **Va Polytechnic Inst & St Univ**      **8176**  
 FEASIBILITY STUDY OF A SYNTHESIS PROCEDURE FOR ARR AY  
 FEEDS TO IMPROVE RADIATION OF LARGE DISTORTED  
*Period*      *Obligations*  
 02/26/1988-12/31/1993      FY93: \$36,876      TOTAL: \$413,687  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
 W L STUTZMAN      LARC/M C BAILEY      45-Elec Engr  
                          ....T G CAMPBELL

**NAG 1-1101**      **Va Polytechnic Inst & St Univ**      **8183**  
 CRYSTALLIZATION-STRUCTURE-PROPERTY INVESTIGATIONS OF  
 SELECTED POLYIMIDES  
*Period*      *Obligations*  
 03/06/1990-12/31/1993      FY93: \$0      TOTAL: \$106,392  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
 G L WILKES      LARC/P M HERGENROTHER      12-Chemistry  
                          ....J A HINKLEY

**NAG 1-901**      **Va Polytechnic Inst & St Univ**      **8177**  
 INNOVATIVE DESIGN OF COMPOSITE STRUCTURES  
*Period*      *Obligations*  
 07/22/1988-12/31/1993      FY93: \$0      TOTAL: \$184,875  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
 M W HYER      LARC/M P NEMETH      41-Aero Engr

**NAG 1-1119**      **Va Polytechnic Inst & St Univ**      **8184**  
 WAVE-NUMBER FREQUENCY SPECTRA IN A TRAILING VORTEX FOR  
 BWI NOISE PREDICTION  
*Period*      *Obligations*  
 04/17/1990-08/15/1993      FY93: \$1      TOTAL: \$193,435  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
 W J DEVENPORT      LARC/T F BROOKS      41-Aero Engr  
 S A GLEGG      ....M A MARCOLINI

**NAG 1-946**      **Va Polytechnic Inst & St Univ**      **8178**  
 ADVANCED BOOSTER GUIDANCE STUDIES  
*Period*      *Obligations*  
 12/22/1988-08/15/1992      FY93: \$0      TOTAL: \$217,505  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
 E M CLIFF      LARC/D D MOERDER      41-Aero Engr  
                          ....D B PRICE

**NAG 1-1160**      **Va Polytechnic Inst & St Univ**      **8185**  
 VARIABLE COMPLEXITY DESIGN STRATEGY APPLIED TO  
 SUPERSONIC WING DESIGN.  
*Period*      *Obligations*  
 06/26/1990-08/15/1993      FY93: \$53,781      TOTAL: \$191,058  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
 B GROSSMAN      LARC/P G COEN      41-Aero Engr  
 W MASON  
 R HAFTKA

**NAG 1-1006**      **Va Polytechnic Inst & St Univ**      **8179**  
 HOLOGRAPHIC SENSORS FOR CONTROL OF FLEXIBLE  
 STRUCTURES  
*Period*      *Obligations*  
 06/27/1989-10/06/1991      FY93: \$72      TOTAL: \$81,029  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
 D K LINDNER      LARC/S S WELCH      42-Astro Engr  
 R O CLAUS

**NAG 1-1165**      **Va Polytechnic Inst & St Univ**      **8186**  
 OPTICAL PROCESSING FOR DISTRIBUTED SENSING.  
*Period*      *Obligations*  
 07/24/1990-04/30/1992      FY93: \$208      TOTAL: \$21,792  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
 D K LINDNER      LARC/S W WELCH      42-Astro Engr  
 G INDEBETOUW      ....R C MONTGOMERY

**NAG 1-1037**      **Va Polytechnic Inst & St Univ**      **8180**  
 HIGH-ALPHA FOREBODY DESIGN: PART 1 - METHODOLOGY BASE  
 AND INITIAL PARAMETRICS  
*Period*      *Obligations*  
 07/17/1989-07/01/1992      FY93: \$1,798      TOTAL: \$66,699  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
 W H MASON      LARC/E G WAGGONER      41-Aero Engr  
                          ....J M LUCKRING

**NAG 1-1186**      **Va Polytechnic Inst & St Univ**      **8187**  
 SURFACE ANALYSISOF NASA-LDEF MATERIALS  
*Period*      *Obligations*  
 09/21/1990-09/30/1993      FY93: \$27,000      TOTAL: \$145,645  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
 J P WIGHTMAN      LARC/W S SLEMP      12-Chemistry  
                          ....P R YOUNG

**NAG 1-1084**      **Va Polytechnic Inst & St Univ**      **8181**  
 CHAOS AND CRYSTAL GROWTH - AN EXPLORATORY STUDY  
*Period*      *Obligations*  
 01/11/1990-06/30/1992      FY93: \$0      TOTAL: \$17,244  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
 D DIPLAS      LARC/A L FRIPP      19-Phys Sci, NEC

**NAG 1-1215**      **Va Polytechnic Inst & St Univ**      **8188**  
 IMPROVEMENTS TO A METHOD FOR THE GEOMETRICALLY NON  
 -LINEAR ANALYSIS OF COMPRESSIVELY LOADED STIFFENE  
*Period*      *Obligations*  
 02/13/1991-10/31/1993      FY93: \$1      TOTAL: \$92,532  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
 Z GURDAL      LARC/J H STARNES      41-Aero Engr  
 F STOLL

**NAG 1-1085**      **Va Polytechnic Inst & St Univ**      **8182**  
 DESIGN ORIENTED ANALYSIS OF GEODESICALLY-STIFFENED  
 COMPOSITE CYLINDRICAL  
*Period*      *Obligations*  
 01/11/1990-01/31/1993      FY93: \$0      TOTAL: \$56,084  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
 J N REDDY      LARC/J H STARNES      41-Aero Engr  
 Z GURDAL      ....D R AMBUR

**NAG 1-1244**      **Va Polytechnic Inst & St Univ**      **8189**  
 ATMOSPHERIC FLIGHT GUIDANCE FOR AIRBREATHING  
 HYPERSONIC VEHICLES  
*Period*      *Obligations*  
 04/15/1991-12/31/1993      FY93: \$14,998      TOTAL: \$86,996  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
 E M CLIFF      LARC/D D MOERDER      42-Astro Engr  
                          ....W T SUIT

**NASA'S UNIVERSITY PROGRAM**  
**VIRGINIA (Continued)**

**NAG 1-1250**      **Va Polytechnic Inst & St Univ**      **8190**  
NEW AROMATIC ACTIVATED DIHALIDES AND BISPHENOL  
MONOMERS FOR PREPARATION OF POLY(ARYLENE ETHERS)  
*Period*      *Obligations*  
06/07/1991-09/30/1992      FY93: \$0      TOTAL: \$50,000  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
J F WOLFE      LARC/P M HERGENROTHER      12-Chemistry  
...../J W CONNELL

**NAG 1-1325**      **Va Polytechnic Inst & St Univ**      **8197**  
MODEL-ASSISTED OPERATIONAL PROCESSING OF ERBE SCANNER  
AND NON-SCANNER DATA  
*Period*      *Obligations*  
07/23/1991-09/30/1993      FY93: \$0      TOTAL: \$136,421  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
J R MAHAN      LARC/R B LEE      31-Atmos Sci  
...../R J KEYNTON

**NAG 1-1275**      **Va Polytechnic Inst & St Univ**      **8191**  
SAPPHIRE OPTICAL FIBER INTERCONNECTS  
*Period*      *Obligations*  
06/21/1991-06/14/1993      FY93: \$0      TOTAL: \$90,000  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
R G MAY      LARC/K K TEDJOJUWONO      45-Elec Engr  
R O CLAUS      ....A J ZUCKERWAR  
K A MURPHY

**NAG 1-1348**      **Va Polytechnic Inst & St Univ**      **8198**  
OPTICAL FIBER SENSOR INSTRUMENTATION FOR AEROSPACE  
APPLICATIONS  
*Period*      *Obligations*  
09/25/1991-09/22/1992      FY93: \$0      TOTAL: \$40,000  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
R O CLAUS      LARC/R S ROGOWSKI      45-Elec Engr  
D K LINDNER  
J K SHAW

**NAG 1-1277**      **Va Polytechnic Inst & St Univ**      **8192**  
SKIN FRICTION GAUGE DEVELOPMENT  
*Period*      *Obligations*  
06/07/1991-05/30/1993      FY93: \$0      TOTAL: \$212,001  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
J A SCHETZ      LARC/G B NORTHAM      41-Aero Engr  
T E DILLER

**NAG 1-1363**      **Va Polytechnic Inst & St Univ**      **8199**  
OPTICAL DISTRIBUTED SENSOR FOR FEEDBACK CONTROL  
*Period*      *Obligations*  
01/27/1992-01/14/1994      FY93: \$50,000      TOTAL: \$110,000  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
G INDEBETOUW      LARC/S S WELCH      42-Astro Engr  
D K LINDNER

**NAG 1-1282**      **Va Polytechnic Inst & St Univ**      **8193**  
RESIDUAL STRENGTH AND LIFE PREDICTION FOR COMPOSITE  
MOTOR CASES  
*Period*      *Obligations*  
05/08/1991-09/30/1994      FY93: \$50,000      TOTAL: \$144,392  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
K L REIFSNIDER      LARC/C C POE      46-Mech Engr  
W W STINCHCOMB      ....W S JOHNSON

**NAG 1-1392**      **Va Polytechnic Inst & St Univ**      **8200**  
STRESS GRADIENTS IN COMPOSITE STRUCTURES WITH GEO  
METRIC DISCONTINUITIES  
*Period*      *Obligations*  
02/20/1992-02/12/1994      FY93: \$23,000      TOTAL: \$45,500  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
J MORTON      LARC/G L FARLEY      41-Aero Engr

**NAG 1-1292**      **Va Polytechnic Inst & St Univ**      **8194**  
SAPPHIRE OPTICAL FIBER MATERIALS AND SENSORS AND HIGH  
TEMPERATURE MATERIALS ANALYSIS  
*Period*      *Obligations*  
06/21/1991-06/14/1993      FY93: \$0      TOTAL: \$139,857  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
R O CLAUS      LARC/R S ROGOWSKI      49-Engr, NEC  
K A MURPHY  
R A CZARNEK

**NAG 1-1393**      **Va Polytechnic Inst & St Univ**      **8201**  
DETERMINATION OF THE NONLINEAR SHEAR RESPONSE OF  
COMPOSITE  
*Period*      *Obligations*  
02/20/1992-02/12/1993      FY93: \$0      TOTAL: \$22,500  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
J MORTON      LARC/G L FARLEY      41-Aero Engr

**NAG 1-1300**      **Va Polytechnic Inst & St Univ**      **8195**  
STATIC AND DYNAMIC POSTBUCKLING BEHAVIOR OF SANDWICH  
AND SHEAR DEFORMABLE COMPOSITE FLAT AND CURVED  
PANELS  
*Period*      *Obligations*  
07/02/1991-06/30/1994      FY93: \$54,524      TOTAL: \$133,317  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
L LIBRESCU      LARC/J H STARNES      41-Aero Engr  
...../M P NEMETH

**NAG 1-1405**      **Va Polytechnic Inst & St Univ**      **8202**  
OPTIMAL-TACTICAL GUIDANCE STUDIES INCREMENTALLY FUNDED  
IN THE AMOUNT OF \$37,383  
*Period*      *Obligations*  
03/17/1992-05/15/1994      FY93: \$50,000      TOTAL: \$87,383  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
E M CLIFF      LARC/K H GOODRICH      41-Aero Engr  
...../C GRACEY

**NAG 1-1303**      **Va Polytechnic Inst & St Univ**      **8196**  
RESEARCH IN THE TURBULENCE STRUCTURE OF THE NEAR WALL  
REGION OF THREE-DIMENSIONAL TURBULENT BOUNDARY  
LAYER  
*Period*      *Obligations*  
07/02/1991-12/31/1993      FY93: \$38,000      TOTAL: \$188,001  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
R L SIMPSON      LARC/S K ROBINSON      41-Aero Engr

**NAG 1-1411**      **Va Polytechnic Inst & St Univ**      **8203**  
SHAPE SENSITIVITY ANALYSIS AND DYNAMIC AEROELASTIC  
RESPONSES  
*Period*      *Obligations*  
03/09/1992-10/31/1993      FY93: \$52,057      TOTAL: \$104,057  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
R K KAPANIA      LARC/J SOBIESKI      41-Aero Engr  
...../J BARTHELEMY

**NASA'S UNIVERSITY PROGRAM**  
**VIRGINIA (Continued)**

**NAG 1-1429**      **Va Polytechnic Inst & St Univ**      **8204**  
 EXPERIMENTAL INVESTIGATION OF TEXTILE COMPOSITES  
*Period*      *Obligations*  
 03/23/1992-09/30/1993      FY93: \$61,179      TOTAL: \$81,287  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
 P IFJU      LARC/C C POE      47-Materials Engr  
 D MORRIS      ....C E HARRIS

**NAG 1-1449**      **Va Polytechnic Inst & St Univ**      **8205**  
 AIRPLANE CONTROL ALLOCATION STUDY - NLPN 92-435  
*Period*      *Obligations*  
 08/07/1992-08/06/1994      FY93: \$57,773      TOTAL: \$103,595  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
 W C DURHAM      LARC/J V FOSTER      41-Aero Engr

**NAG 1-1456**      **Va Polytechnic Inst & St Univ**      **8206**  
 MODEL-BASED STUDIES OF CERES AND ERBE TYPE SCANNING  
 THERMISTOR BOLOMETER RADIOMETERS  
*Period*      *Obligations*  
 09/29/1992-08/15/1994      FY93: \$52,506      TOTAL: \$96,506  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
 J R MAHAN      LARC/J W YOUNGBLOOD      31-Atmos Sci

**NAG 1-1458**      **Va Polytechnic Inst & St Univ**      **8207**  
 RELIABILITY-BASED OPTIMIZATION: AN ANALYTICAL EXPERIMENTAL  
 STUDY - NLPN 91-1255  
*Period*      *Obligations*  
 11/16/1992-11/09/1993      FY93: \$40,000      TOTAL: \$40,000  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
 E NIKOLAIDIS      LARC/W J STROUD      49-Engr, NEC  
 H H CUDNEY

**NAG 1-1462**      **Va Polytechnic Inst & St Univ**      **8208**  
 VIBRATION SUPPRESSION IN THE EVOLUTIONARY MODEL  
*Period*      *Obligations*  
 12/23/1992-12/14/1993      FY93: \$84,947      TOTAL: \$84,947  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
 D J INMAN      LARC/W K BELVIN      49-Engr, NEC

**NAG 1-1466**      **Va Polytechnic Inst & St Univ**      **8209**  
 ADJOINT METHODS FOR AERODYNAMIC WING DESIGN  
*Period*      *Obligations*  
 12/11/1992-12/10/1993      FY93: \$33,059      TOTAL: \$33,059  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
 B GROSSMAN      LARC/M D SALAS      41-Aero Engr  
 R P NARDUCCI      ....T A ZANG

**NAG 1-1500**      **Va Polytechnic Inst & St Univ**      **8210**  
 EVALUATION OF HIGH TEMPERATURE SUPERCONDUCTIVE  
 THERMAL BRIDGES FOR SPACE BORNE CRYOGENIC INFRARE  
*Period*      *Obligations*  
 04/15/1993-05/14/1994      FY93: \$38,437      TOTAL: \$38,437  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
 E P SCOTT      LARC/S A WISE      47-Materials Engr  
 K M LEE

**NAG 1-1507**      **Va Polytechnic Inst & St Univ**      **8211**  
 DEVELOPMENT OF METHODOLOGIES FOR THE ESTIMATION OF  
 THERMAL PROPERTIES ASSOCIATED WITH AEROSPACE VEHI  
*Period*      *Obligations*  
 04/30/1993-04/30/1994      FY93: \$27,023      TOTAL: \$27,023  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
 E P SCOTT      LARC/C J CAMARDA      46-Mech Engr  
 ....J H STARNES

**NAG 1-1508**      **Va Polytechnic Inst & St Univ**      **8212**  
 OPTICAL FIBER SENSOR FOR DAMAGE ANALYSIS IN AEROSPACE  
 MATERIALS NLPN 93-321  
*Period*      *Obligations*  
 05/25/1993-06/30/1994      FY93: \$30,000      TOTAL: \$30,000  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
 R O CLAUS      LARC/R S ROGOWSKI      45-Elec Engr

**NAG 1-1538**      **Va Polytechnic Inst & St Univ**      **8213**  
 HEAT FLUX INSTRUMENTATION FOR HYFLITE THERMAL  
 PROTECTION SYSTEM  
*Period*      *Obligations*  
 08/13/1993-01/12/1994      FY93: \$100,000      TOTAL: \$100,000  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
 T DILLER      LARC/G B NORTHAM      41-Aero Engr

**NAG 2-664**      **Va Polytechnic Inst & St Univ**      **8214**  
 DOCUMENTATION OF LOIR-I  
*Period*      *Obligations*  
 08/03/1990-08/14/1992      FY93: \$0      TOTAL: \$174,646  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
 J R MAHAN      ARC/S B WILSON III      49-Engr, NEC  
 C H STERN      ....J W LANE

**NAG 3-830**      **Va Polytechnic Inst & St Univ**      **8215**  
 EXPER STDY SUPERSONIC THROUGH FLOW CASCADE  
*Period*      *Obligations*  
 11/02/1987-10/22/1993      FY93: \$64,943      TOTAL: \$392,635  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
 W F NG      LERC/D L TWEEDT      41-Aero Engr  
 J A SCHETZ      ....R D MOORE

**NAG 3-1211**      **Va Polytechnic Inst & St Univ**      **8216**  
 TIME RESOLVED MEASUREMENTS FOR THE UNDERSTANDING O F  
 MULTISTAGE COMPRESSOR FLOW PHYSICS  
*Period*      *Obligations*  
 12/07/1990-12/23/1993      FY93: \$30,000      TOTAL: \$111,675  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
 W F NG      LERC/K L SUDER      41-Aero Engr

**NAG 3-1266**      **Va Polytechnic Inst & St Univ**      **8217**  
 ADVANCED COMPRESSION SYSTEMS MODELING AND ANALYSIS  
*Period*      *Obligations*  
 07/03/1991-08/11/1994      FY93: \$90,277      TOTAL: \$250,332  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
 W F O'BRIEN      LERC/G A BOBULA      46-Mech Engr

**NAG 3-1285**      **Va Polytechnic Inst & St Univ**      **8218**  
 HEAT TRANSFER MEASUREMENTS FOR STIRLING MACHINE CY  
 LINDERS  
*Period*      *Obligations*  
 05/30/1991-08/15/1994      FY93: \$31,504      TOTAL: \$102,872  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
 A A KORNHAUSER      LERC/S M GENG      46-Mech Engr

**NASA'S UNIVERSITY PROGRAM**  
**VIRGINIA (Continued)**

**NAG 3-1349**      **Va Polytechnic Inst & St Univ**      **8219**  
SPACE STATION POWER SYSTEM MODELING AND STABILITY ANALYSIS  
*Period*      *Obligations*  
05/22/1992-11/30/1993      FY93: \$200,001      TOTAL: \$400,001  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
F C LEE      LERC/G KOPASAKIS      45-Elec Engr  
B H CHO  
D SABLE

**NAG 3-1521**      **Va Polytechnic Inst & St Univ**      **8220**  
APPLICATION OF PARALLEL COMPUTER DYNAMIC MODEL IN A COMPRESSOR TEST ENVIRONMENT  
*Period*      *Obligations*  
09/24/1993-04/23/1994      FY93: \$34,590      TOTAL: \$34,590  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
W F OBRIEN      LERC/A K OWEN      41-Aero Engr

**NAG 3-1539**      **Va Polytechnic Inst & St Univ**      **8221**  
AEROACOUSTICS OF A TWO-DIMENSIONAL DIFURCATED SUPERSONIC INLET  
*Period*      *Obligations*  
09/28/1993-10/14/1994      FY93: \$10,000      TOTAL: \$10,000  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
W NG      LERC/R P WOODWARD      41-Aero Engr

**NAG 5-659**      **Va Polytechnic Inst & St Univ**      **8222**  
MULTIHEAM RADAR ALTIMETER ALGORITHM DEVELOPMENT  
*Period*      *Obligations*  
09/01/1989-12/31/1993      FY93: \$0      TOTAL: \$23,700  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
G S BROWN      GSFC/C L PARSONS      45-Elec Engr  
...../G S HAYNE

**NAG 5-1232**      **Va Polytechnic Inst & St Univ**      **8223**  
ANALYSIS AND DESIGN HIGH POWER DIGITALY CONTROLLED SPACECRAFT  
*Period*      *Obligations*  
07/31/1989-09/30/1992      FY93: \$0      TOTAL: \$321,086  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
F C LEE      GSFC/J M JAGIELSKI      41-Aero Engr  
B H CHO      .... /G E RODRIGUEZ

**NAGW 2335**      **Va Polytechnic Inst & St Univ**      **8224**  
DESIGN AND CONSTRUCTION OF A PROTOTYPE ACTS PROPAGATION TERMINAL  
*Period*      *Obligations*  
02/07/1991-09/30/1992      FY93: \$0      TOTAL: \$259,285  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
W L STUTZMAN      HQ/D A OLMSTEAD      99-Multi-Discip  
T PRATT  
J C MCKEEMAN

**NAGW 2926**      **Va Polytechnic Inst & St Univ**      **8225**  
A COMPARATIVE EVALUATION OF LANDSAT TM AND SPOT HR V IN DIFFERENTIATING VEGETATIVE FORMATIONS  
*Period*      *Obligations*  
02/19/1992-06/30/1993      FY93: \$0      TOTAL: \$56,557  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
J O BROWDER      HQ/R E MURPHY      32-Geological Sci  
...../D M BUTLER

**NAS 1-18471**      **Va Polytechnic Inst & St Univ**      **8226**  
RESEARCH IN AERODYNAMICS AND OTHER RELATED FIELDS  
*Period*      *Obligations*  
06/15/1987-06/14/1992      FY93: \$12,097      TOTAL: \$3,608,834  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
UNAVAILABLE      LARC/E J PRIOR      41-Aero Engr  
...../S E MASSENBERG

**NAS 1-19610**      **Va Polytechnic Inst & St Univ**      **8227**  
RESEARCH IN AERODYNAMICS, CHEMISTRY, INSTRUMENTATION, AND OTHER FIELDS  
*Period*      *Obligations*  
07/24/1992-07/23/1998      FY93: \$878,029      TOTAL: \$894,029  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
LARC/E J PRIOR      99-Multi-Discip

**NAS 3-26827**      **Va Polytechnic Inst & St Univ**      **8228**  
IN-SITU ACOUSTO-ULTRASONIC NDE TECHNIQUE TO ASSESS DAMAGE IN CERAMIC COMPOSITES  
*Period*      *Obligations*  
11/05/1992-02/18/1996      FY93: \$116,775      TOTAL: \$116,775  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
E G HENNEKE      LERC/A VARY      47-Materials Engr

**NAS 5-31442**      **Va Polytechnic Inst & St Univ**      **8229**  
HIGH POWERED SPACE POWER SYSTEM HARDWARE TESTBED  
*Period*      *Obligations*  
02/11/1991-08/30/1994      FY93: \$217,655      TOTAL: \$716,123  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
F C LEE      GSFC/J M JAGIELSKI      45-Elec Engr  
B H CHO      .... /G E RODRIGUEZ

**NCA 2-625**      **Va Polytechnic Inst & St Univ**      **8230**  
A FINITE ELEMENT WING BOX MODELLING FOR AN ENSEARO BASED AREOELASTIC ANALYSIS  
*Period*      *Obligations*  
06/17/1991-12/14/1993      FY93: \$0      TOTAL: \$63,989  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
R K KAPANIA      ARC/G P GURUSWAMY      41-Aero Engr

**NCA 2-800**      **Va Polytechnic Inst & St Univ**      **8231**  
SKIN FRICTION GAGES FOR IMPULSE TUNNELS  
*Period*      *Obligations*  
04/02/1993-01/31/1994      FY93: \$25,066      TOTAL: \$25,066  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
J A SCHETZ      ARC/G S DEIWERT      41-Aero Engr

**NCA 2-838**      **Va Polytechnic Inst & St Univ**      **8232**  
AERELASTIC ANALYSIS OF ADVANCED WINGS USING ENSAERO AND A DETAILED FINITE ELEMENT STRUCTURAL MODEL  
*Period*      *Obligations*  
08/25/1993-09/14/1994      FY93: \$30,000      TOTAL: \$30,000  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
R K KAPANIA      ARC/G P GURUSWAMY      41-Aero Engr

**NCC 1-158**      **Va Polytechnic Inst & St Univ**      **8233**  
AIRCRAFT CONTROL REQUIREMENT STUDIES  
*Period*      *Obligations*  
07/17/1991-06/30/1994      FY93: \$89,498      TOTAL: \$288,866  
*Prin. Invest.*      *NASA Tech. Officer*      *CASE Category*  
F H LUTZE      LARC/J V FOSTER      41-Aero Engr  
W H MASON



**NASA'S UNIVERSITY PROGRAM**  
**VIRGINIA (Continued)**

**NCC 2-691 Va Polytechnic Inst & St Univ 8234**  
 INFRARED IMAGING OF JET PLUMES AS A VALIDATION TECHNIQUE  
 FOR CFD CODES USED IN STOVL APPLICATIONS

Period	Obligations	
08/24/1990-08/14/1994	FY93: \$40,002	TOTAL: \$140,463
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
J R MAHAN	ARC/L D BIRCKELBAW	41-Aero Engr
	.....S B WILSON	

**NGT 00-050-404 Va Polytechnic Inst & St Univ 8235**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM

Period	Obligations	
08/31/1989-06/30/1992	FY93: \$0	TOTAL: \$62,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
J N REDDY	HQ/F C OWENS	46-Mech Engr

**NGT 00-050-413 Va Polytechnic Inst & St Univ 8236**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM

Period	Obligations	
08/15/1989-08/15/1992	FY93: \$0	TOTAL: \$62,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
W STUTZMAN	HQ/F C OWENS	45-Elec Engr

**NGT 00-050-439 Va Polytechnic Inst & St Univ 8237**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM

Period	Obligations	
07/27/1989-06/30/1993	FY93: \$0	TOTAL: \$84,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
W F NG	HQ/F C OWENS	46-Mech Engr

**NGT 00-050-489 Va Polytechnic Inst & St Univ 8238**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM

Period	Obligations	
08/02/1989-06/30/1992	FY93: \$226	TOTAL: \$61,774
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
J E LAPORTE	HQ/E SCHWARTZ	29-Math/Cmputer, NEC

**NGT 00-050-552 Va Polytechnic Inst & St Univ 8239**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM

Period	Obligations	
08/20/1990-06/30/1993	FY93: \$11,000	TOTAL: \$66,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
D LINDNER	HQ/F C OWENS	45-Elec Engr

**NGT 00-050-565 Va Polytechnic Inst & St Univ 8240**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM

Period	Obligations	
06/29/1990-05/15/1994	FY93: \$11,000	TOTAL: \$77,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
R G KIRK	HQ/F C OWENS	46-Mech Engr

**NGT 00-050-593 Va Polytechnic Inst & St Univ 8241**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM

Period	Obligations	
09/12/1990-01/31/1993	FY93: \$0	TOTAL: \$44,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
J N REDDY	HQ/F C OWENS	46-Mech Engr

**NGT 00-050-754 Va Polytechnic Inst & St Univ 8242**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM

Period	Obligations	
07/01/1991-06/30/1993	FY93: \$0	TOTAL: \$44,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
T PRATT	HQ/F C OWENS	45-Elec Engr

**NGT 00-050-978 Va Polytechnic Inst & St Univ 8243**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM

Period	Obligations	
07/24/1992-06/30/1994	FY93: \$22,000	TOTAL: \$44,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
D P TELIONIS	LARC/E PRIOR	41-Aero Engr

**NGT 00-050-988 Va Polytechnic Inst & St Univ 8244**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM

Period	Obligations	
08/11/1992-06/30/1995	FY93: \$22,000	TOTAL: \$44,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
J LAPORTE	HQ/P BACON	79-Soc Sci, NEC

**NGT 00-051-108 Va Polytechnic Inst & St Univ 8245**  
 GRADUATE STUDENT RESEARCHERS PROGRAM

Period	Obligations	
07/05/1993-06/30/1994	FY93: \$22,000	TOTAL: \$22,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
J R MAHN	LARC/E PRIOR	46-Mech Engr

**NGT 00-051-116 Va Polytechnic Inst & St Univ 8246**  
 GRADUATE STUDENT RESEARCHERS PROGRAM

Period	Obligations	
05/28/1993-06/30/1994	FY93: \$22,000	TOTAL: \$22,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
D A DILLARD	LARC/E PRIOR	46-Mech Engr

**NGT 00-051-117 Va Polytechnic Inst & St Univ 8247**  
 GRADUATE STUDENT RESEARCHERS PROGRAM

Period	Obligations	
05/25/1993-06/30/1994	FY93: \$22,000	TOTAL: \$22,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
G L WILKES	LARC/E PRIOR	43-Chem Engr

**NGT 00-051-174 Va Polytechnic Inst & St Univ 8248**  
 GRADUATE STUDENT RESEARCHERS PROGRAM

Period	Obligations	
08/03/1993-06/30/1994	FY93: \$22,000	TOTAL: \$22,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
R T HAFTKA	LARC/E PRIOR	41-Aero Engr

**NGT 00-070-269 Va Polytechnic Inst & St Univ 8249**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
 MINORITY FOCUS PROGRAM

Period	Obligations	
06/26/1992-08/14/1993	FY93: \$22,000	TOTAL: \$44,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
U VANDSBORGER	LARC/E J PRIOR	46-Mech Engr

**NASA'S UNIVERSITY PROGRAM**  
**VIRGINIA (Continued)**

**NGT 00-070-295 Va Polytechnic Inst & St Univ 8250**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
 MINORITY FOCUS PROGRAM  
*Period Obligations*  
 11/13/1992-12/31/1993 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 W L STUTZMAN LARC/E PRIOR 45-Elec Engr

**NGT 00-070-298 Va Polytechnic Inst & St Univ 8251**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
 MINORITY FOCUS PROGRAM  
*Period Obligations*  
 09/16/1992-08/14/1994 FY93: \$22,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 L A ROC LARC/E PRIOR 46-Mech Engr

**NGT 00-070-318 Va Polytechnic Inst & St Univ 8252**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
 MINORITY FOCUS PROGRAM  
*Period Obligations*  
 06/29/1993-06/30/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 T POON HQ/D K RUSSELL 45-Elec Engr

**NGT 00-070-360 Va Polytechnic Inst & St Univ 8253**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
 MINORITY FOCUS PROGRAM  
*Period Obligations*  
 08/31/1993-07/31/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R BURDISO HQ/D K RUSSELL 99-Multi-Discip

**NGT 00-090-104 Va Polytechnic Inst & St Univ 8254**  
 UNDERGRADUATE STUDENT RESEARCHERS PROGRAM (UMF)  
*Period Obligations*  
 09/24/1992-08/14/1994 FY93: \$24,000 TOTAL: \$24,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J NOTTINGHAM HQ/D K RUSSELL 99-Multi-Discip

**NGT 00-090-105 Va Polytechnic Inst & St Univ 8255**  
 UNDERGRADUATE STUDENT RESEARCHERS PROGRAM (UMF)  
*Period Obligations*  
 09/24/1992-08/14/1993 FY93: \$12,000 TOTAL: \$12,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J NOTTINGHAM HQ/D K RUSSELL 99-Multi-Discip

**NGT 00-090-106 Va Polytechnic Inst & St Univ 8256**  
 UNDERGRADUATE STUDENT RESEARCHERS PROGRAM (UMF)  
*Period Obligations*  
 09/24/1992-08/14/1994 FY93: \$24,000 TOTAL: \$24,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J NOTTINGHAM HQ/D K RUSSELL 99-Multi-Discip

**NGT 00-090-203 Va Polytechnic Inst & St Univ 8257**  
 UNDERGRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 08/27/1993-08/14/1994 FY93: \$12,000 TOTAL: \$12,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J NOTTINGHAM HQ/D RUSSELL 99-Multi-Discip

**NGT 00-090-204 Va Polytechnic Inst & St Univ 8258**  
 UNDERGRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 08/27/1993-08/14/1994 FY93: \$12,000 TOTAL: \$12,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J NOTTINGHAM HQ/D RUSSELL 99-Multi-Discip

**NGT 00-090-205 Va Polytechnic Inst & St Univ 8259**  
 UNDERGRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 08/27/1993-08/14/1994 FY93: \$12,000 TOTAL: \$12,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J NOTTINGHAM HQ/D RUSSELL 99-Multi-Discip

**NGT 00-090-206 Va Polytechnic Inst & St Univ 8260**  
 UNDERGRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 08/27/1993-08/14/1994 FY93: \$12,000 TOTAL: \$12,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J NOTTINGHAM HQ/D RUSSELL 99-Multi-Discip

**NGT 00-090-215 Va Polytechnic Inst & St Univ 8261**  
 UNDERGRADUATE STUDENT RESEARCHERS (UMF) PROGRAM  
*Period Obligations*  
 09/23/1993-08/14/1994 FY93: \$12,000 TOTAL: \$12,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J NOTTINGHAM HQ/D K RUSSELL 99-Multi-Discip

**NAG 1-695 Virginia Commonwealth University 8262**  
 DEVELOPMENT OF ACOUSTIC TEST APPARATUS FOR EVALUATION  
 OF THE STATE OF THE HUMAN AIRWAYS  
*Period Obligations*  
 08/07/1986-12/31/1992 FY93: \$2,501 TOTAL: \$90,501  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J L PATTERSON LARC/J SAMOS 56-Medical Sciences  
 ....J M SEINER

**NAG 1-1251 Virginia Commonwealth University 8263**  
 NOVEL POLYMER SYNTHESIS  
*Period Obligations*  
 06/11/1991-07/31/1994 FY93: \$93,705 TOTAL: \$173,704  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R G BASS LARC/P M HERGENROTHER 12-Chemistry  
 ....B J JENSEN

**NAG 9-412 Virginia Commonwealth University 8264**  
 RELEVANCE OF BAROREFLEX TO HUMAN CARDIOVASCULAR  
 ADJUSTMENTS TO WEIGHTLESSNESS  
*Period Obligations*  
 03/08/1990-09/01/1994 FY93: \$80,000 TOTAL: \$356,800  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D L ECKBERG JSC/S M FURTNEY 51-Biological Sci  
 M L SMITH

**NAS 9-16046 Virginia Commonwealth University 8265**  
 INFLUENCE WEIGHTLESSNESS CARDIOVASCULAR  
*Period Obligations*  
 01/17/1980-02/01/1994 FY93: \$353,960 TOTAL: \$3,920,419  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D L ECKBERG JSC/W J YOUNG 59-Life Sci, NEC

**NASA'S UNIVERSITY PROGRAM**  
**VIRGINIA (Continued)**

**NGT 00-090-174 Virginia Commonwealth University 8266**  
 UNDERGRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 08/27/1993-08/14/1994 FY93: \$12,000 TOTAL: \$12,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J BERLUND HQ/D RUSSELL 99-Multi-Discip

**NAG 1-416 Virginia State University 8267**  
 SOLID STATE PHYSICS RESEARCH PROGRAM  
*Period Obligations*  
 09/15/1983-06/30/1994 FY93: \$1,500 TOTAL: \$1,158,343  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 C E STRONACH LARC/J W WILSON 19-Phys Sci, NEC  
 R I GRYSNZPAN ....W E MEADOR  
 J J STITH

**NAG 1-765 Virginia State University 8268**  
 COMPUTER SIMULATION OF RADIATION DAMAGE IN SEMI-  
 CONDUCTORS AND POLYMERS  
*Period Obligations*  
 05/27/1987-09/30/1993 FY93: \$0 TOTAL: \$419,527  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J J STITH LARC/J W WILSON 19-Phys Sci, NEC  
 J C DAVENPORT

**NAG 1-1527 Virginia State University 8269**  
 EFFECTS OF GALACTIC COSMIC RADIATION ON SPACE MATERIALS  
 NLPN 92-1202R  
*Period Obligations*  
 07/12/1993-10/26/1993 FY93: \$3,950 TOTAL: \$3,950  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 C E STRONACH LARC/J W WILSON 13-Physics  
 ....E J CONWAY

**NAGW 3691 Central Washington University 8273**  
 APPLICATION OF HIGH RESOLUTION TOPOGRAPHY AND REMO TE  
 SENSING IMAGERY TO THE KINEMATICS OF FOLD  
*Period Obligations*  
 08/25/1993-08/31/1994 FY93: \$31,615 TOTAL: \$31,615  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 C RUBIN HQ/M BALTUCK 32-Geological Sci

**NAGW 3622 Northwest Indian College 8274**  
 SEAQUEST OUTDOOR LAB FOR NATIVE AMERICANS  
*Period Obligations*  
 05/28/1993-05/31/1994 FY93: \$75,000 TOTAL: \$75,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R LORENCE ARC/A HATCH 39-Env Sci, NEC  
 ....B WHITE

**NAG 1-41 University of Washington 8275**  
 RADIATION VIEWFACTOR ANALYSIS  
*Period Obligations*  
 02/12/1980-06/30/1992 FY93: \$0 TOTAL: \$489,873  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A F EMERY LARC/C P SHORE 46-Mech Engr  
 C J KIPPENHAM ....P P POLESKY

**NAG 1-1210 University of Washington 8276**  
 SYSTEM THEORETIC STUDIES OF H - OPTIMIZATION AND  
 ALTERNATE NON ARE BASED DESIGN APPROACHES  
*Period Obligations*  
 12/19/1990-12/31/1993 FY93: \$91,454 TOTAL: \$204,636  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 U L LY LARC/C M BELCASTRO 41-Aero Engr  
 A SABERI

**NAG 1-1288 University of Washington 8277**  
 INVESTIGATION OF ADVANCED PROPULSION TECNOLOGIES: THE  
 RAM ACCELERATOR AND FLOWING GAS RADIATION HEAT  
*Period Obligations*  
 06/28/1991-06/30/1992 FY93: \$1 TOTAL: \$100,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A HERTZBERG LARC/R D WITCOFSKI 41-Aero Engr  
 A P BRUCKNER ....W I SCALLION  
 A T MATTICK

**NAG 1-1404 University of Washington 8278**  
 QUANTIFYING THE STRENGTH OF THE BREWER-DOBSON  
 CIRCULATION AND OTHER STRAT-TROP EXCHANGE PROCESSES  
*Period Obligations*  
 03/13/1992-03/11/1994 FY93: \$70,000 TOTAL: \$140,112  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 K K TUNG LARC/E E REMSBERG 31-Atmos Sci

**NAG 1-1495 University of Washington 8279**  
 SAFETY OF PROCESS - CONTROL SOFTWARE  
*Period Obligations*  
 04/19/1993-04/18/1994 FY93: \$66,000 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 N G LEVESON LARC/D E ECKHARDT 22-Computer Science

**WASHINGTON**

**NAG 5-2270 Central Washington University 8270**  
 APPLIC. OF HIGH RESOLUTION TOPOGRAPHY AND REMOTE S  
 ENSING IMAGERY TO THE KINEMATICS OF FOLD-AND- .  
*Period Obligations*  
 05/26/1993-06/14/1994 FY93: \$25,000 TOTAL: \$25,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M RUBIN GSFC/G BILLS 32-Geological Sci

**NAG 5-2271 Central Washington University 8271**  
 KINEMATICS AND EVOLUTION OF TRANS-PENINSULAR SLIP IN  
 NORTHERN BAJA, CALIFORNIA  
*Period Obligations*  
 05/26/1993-06/14/1994 FY93: \$25,279 TOTAL: \$25,279  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M MILLER GSFC/G BILLS 32-Geological Sci

**NAGW 3464 Central Washington University 8272**  
 ACTIVE DEFORMATION IN THE MOJAVE DESERT REGION AND THE  
 WALKER LANE BELT  
*Period Obligations*  
 04/23/1993-02/28/1994 FY93: \$150,665 TOTAL: \$150,665  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M M MILLER HQ/M BALTUCK 32-Geological Sci  
 M P GOLOMBEK  
 R K DOKKA

**NASA'S UNIVERSITY PROGRAM**  
**WASHINGTON (Continued)**

**NAG 2-629**                      **University of Washington**                      **8280**  
 A UNIFIED DESIGN ALGORITHM FOR H<sub>2</sub> AND H<sup>+</sup> - NORM  
 OPTIMIZATION AND ITS APPLICATION TO FLIGHT CONTROL  
*Period*                                      *Obligations*  
 03/28/1990-03/14/1993                      FY93: \$0                      TOTAL: \$121,514  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 U LY                      ARC/J GERA                      41-Aero Engr  
                                  ..../H H LAMBERT

**NAG 3-376**                      **University of Washington**                      **8287**  
 AN INVESTIGATION OF 3-D BOUNDARY LAYER FLOWS IN SUBSONIC  
 DIFFUSERS  
*Period*                                      *Obligations*  
 12/07/1982-01/14/1994                      FY93: \$112,915                      TOTAL: \$812,743  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 F B GESSNER                      LERC/W R HINGST                      41-Aero Engr  
                                  ..../A R PORRO

**NAG 2-682**                      **University of Washington**                      **8281**  
 PROPOSAL TO STUDY GRAVITY WAVE BREAKDOWN  
*Period*                                      *Obligations*  
 10/19/1990-08/31/1993                      FY93: \$7,965                      TOTAL: \$24,856  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 D R DURRAN                      ARC/L J EHERNBERGER                      31-Atmos Sci

**NAG 3-1486**                      **University of Washington**                      **8288**  
 PRESSURE WAVE MACHINES AS TOPPING UNITS FOR GAS TU  
 RBINES  
*Period*                                      *Obligations*  
 04/15/1993-02/08/1994                      FY93: \$20,144                      TOTAL: \$20,144  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 J J KELLER                      LERC/G J SKOCH                      41-Aero Engr

**NAG 2-691**                      **University of Washington**                      **8282**  
 ADVANCED ROTORCRAFT CONTROL USING NONLINEAR CONST  
 RAINED OPTIMIZATION  
*Period*                                      *Obligations*  
 02/07/1991-12/31/1992                      FY93: \$0                      TOTAL: \$92,205  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 U LY                      ARC/M TAKAHASHI                      41-Aero Engr

**NAG 5-357**                      **University of Washington**                      **8289**  
 MASS LOSS AND PHOTOSPHERIC STRUCTURE IN EARLY TYPE  
 SPECTRUM VARIABLES  
*Period*                                      *Obligations*  
 08/01/1983-09/30/1991                      FY93: \$389                      TOTAL: \$150,503  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 E B VITENSE                      GSFC/D WEST                      11-Astronomy  
 S N SHORE  
 C T BOLTON

**NAG 2-698**                      **University of Washington**                      **8283**  
 MOP SEARCH STRATEGIES AND INTERPRETATIONS  
*Period*                                      *Obligations*  
 03/22/1991-10/31/1993                      FY93: \$66,657                      TOTAL: \$207,698  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 W T SULLIVAN                      ARC/D H BROCKER                      11-Astronomy

**NAG 5-604**                      **University of Washington**                      **8290**  
 MIDDLE ATMOSPHERIC ELECTRIC FIELDS OVER THUNDERSTORMS  
*Period*                                      *Obligations*  
 05/01/1982-06/30/1992                      FY93: \$0                      TOTAL: \$627,738  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 R H HOLZWORTH                      GSFC/L J EARLY                      13-Physics  
 G K PARKS                      ..../H C NEEDLEMAN

**NAG 2-723**                      **University of Washington**                      **8284**  
 STRUCTURAL MODELING OF LIFTING SURFACE CONFIGURATIONS  
 FOR AIRPLANE MULTI-DISCIPLINARY .....  
*Period*                                      *Obligations*  
 07/30/1991-10/14/1993                      FY93: \$52,321                      TOTAL: \$130,362  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 E LIVNE                      ARC/H MIURA                      99-Multi-Discip  
                                  ..../P A GELHAUSEN

**NAG 5-668**                      **University of Washington**                      **8291**  
 EXTENDED LIFE BALLOON OBSERVATORIES  
*Period*                                      *Obligations*  
 05/04/1990-12/31/1993                      FY93: \$55,000                      TOTAL: \$365,000  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 R H HOLZWORTH                      GSFC/H C NEEDLEMAN                      13-Physics  
                                  ..../I S SMITH

**NAG 2-777**                      **University of Washington**                      **8285**  
 NASA COLLABORATIVE STUDIES ON THE RADIATIVE EFFECTS OF  
 CLOUDS  
*Period*                                      *Obligations*  
 04/14/1992-01/31/1994                      FY93: \$147,000                      TOTAL: \$297,000  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 P V HOBBS                      ARC/F P VALERO                      31-Atmos Sci

**NAG 5-677**                      **University of Washington**                      **8292**  
 MICROBURST ELECTRON PRECIPITATION  
*Period*                                      *Obligations*  
 03/29/1991-03/31/1994                      FY93: \$155,140                      TOTAL: \$480,140  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 G K PARKS                      GSFC/L J EARLY                      13-Physics  
                                  ..../R H PLESS

**NAG 2-831**                      **University of Washington**                      **8286**  
 SYSTEMATIC GENERATION, OPTIMIZATION, AND ADAPTATION OF  
 GRIDS FOR COMPLEX THREE-DIMENSIONAL SHAPES  
*Period*                                      *Obligations*  
 04/02/1993-10/31/1994                      FY93: \$53,265                      TOTAL: \$53,265  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 G TURKIYYAH                      ARC/T A LASINSKI                      22-Computer Science

**NAG 5-685**                      **University of Washington**                      **8293**  
 MIDDLE ATMOSPHERE ELECTRODYNAMICS DURING A  
 THUNDERSTORM  
*Period*                                      *Obligations*  
 05/29/1991-03/31/1994                      FY93: \$87,908                      TOTAL: \$218,038  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
 R H HOLZWORTH                      GSFC/H C NEEDLEMAN                      13-Physics  
                                  ..../I S SMITH

**NASA'S UNIVERSITY PROGRAM  
WASHINGTON (Continued)**

**NAG 5-901 University of Washington 8294**  
EVALUATION OF SURFACE RADIATION AND ENERGY BUDGET STATIONS FOR FIFE  
*Period Obligations*  
05/01/1987-03/31/1993 FY93: \$0 TOTAL: \$293,934  
*Prin. Invest. NASA Tech. Officer CASE Category*  
L J FRITSCHEN GSFC/D W DEERING 39-Env Sci, NEC  
...../F HALL

**NAG 5-943 University of Washington 8295**  
USE OF PASSIVE MICROWAVE RADIOMETRY TO STUDY ATMOSPHERIC WATERR CONTENT  
*Period Obligations*  
07/01/1987-06/30/1993 FY93: \$0 TOTAL: \$270,036  
*Prin. Invest. NASA Tech. Officer CASE Category*  
K B KATSAROS GSFC/J R WANG 31-Atmos Sci  
...../J C SHIUE

**NAG 5-1253 University of Washington 8296**  
AN X-RAY BALDWIN EFFECT  
*Period Obligations*  
08/03/1989-08/31/1992 FY93: \$0 TOTAL: \$56,768  
*Prin. Invest. NASA Tech. Officer CASE Category*  
B MARGON GSFC/D WEST 11-Astronomy

**NAG 5-1444 University of Washington 8297**  
ULTRAVIOLET COLORS OF YOUNG LMC CLUSTERS  
*Period Obligations*  
08/20/1990-01/31/1994 FY93: \$12,590 TOTAL: \$38,590  
*Prin. Invest. NASA Tech. Officer CASE Category*  
P W HODGE GSFC/D WEST 11-Astronomy

**NAG 5-1518 University of Washington 8298**  
A SENSITIVE SURVEY OF 47 TUC FOR BINARIES AND DIFF USE X-RAY EMISSION  
*Period Obligations*  
04/02/1991-09/30/1993 FY93: \$19,000 TOTAL: \$52,668  
*Prin. Invest. NASA Tech. Officer CASE Category*  
B H MARGON GSFC/R PETRE 11-Astronomy

**NAG 5-1599 University of Washington 8299**  
STUDIES OF TROPICAL RAIN SYSTEMS FOR TRMM VALIDATION  
*Period Obligations*  
05/13/1991-06/14/1994 FY93: \$110,000 TOTAL: \$377,030  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R A HOUZE GSFC/O THIELE 31-Atmos Sci

**NAG 5-1623 University of Washington 8300**  
X-RAY ANALYSIS OF A LARGE COMPLETE QSO SAMPLELATIT UDE AREAS  
*Period Obligations*  
06/07/1991-06/14/1994 FY93: \$32,182 TOTAL: \$41,377  
*Prin. Invest. NASA Tech. Officer CASE Category*  
S F ANDERSON GSFC/R PETRE 11-Astronomy

**NAG 5-1847 University of Washington 8301**  
SUDDEN CLIMATE CHANGE: THE LAND SURFACE RECORD  
*Period Obligations*  
12/10/1991-12/31/1993 FY93: \$49,730 TOTAL: \$157,730  
*Prin. Invest. NASA Tech. Officer CASE Category*  
A R GILLESPIE GSFC/L S WALTER 32-Geological Sci  
J B ADAMS

**NAG 5-1927 University of Washington 8302**  
NEW DQ HERS AT HIGH GALACTIC LATITUDE  
*Period Obligations*  
03/04/1992-03/14/1994 FY93: \$20,000 TOTAL: \$44,525  
*Prin. Invest. NASA Tech. Officer CASE Category*  
P SZKODY GSFC/R PETRE 11-Astronomy

**NAG 5-1984 University of Washington 8303**  
OBSERVATIONS OF TWO RECENT SYMBIOTIC NOVAE  
*Period Obligations*  
05/12/1992-05/31/1994 FY93: \$15,000 TOTAL: \$40,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
G WALLERSTEIN GSFC/R PETRE 11-Astronomy

**NAG 5-2114 University of Washington 8304**  
DISK PRECESSION IN THE MAGNETIC OLD NOVA V603 AQI  
*Period Obligations*  
10/08/1992-01/31/1994 FY93: \$7,590 TOTAL: \$7,590  
*Prin. Invest. NASA Tech. Officer CASE Category*  
P A SZKODY GSFC/D WEST 11-Astronomy

**NAG 5-2213 University of Washington 8305**  
LARGE SCALE STRUCTURE AND GALAXY FORMATION  
*Period Obligations*  
02/18/1993-11/30/1993 FY93: \$319,000 TOTAL: \$319,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
G LAKE GSFC/J R FISCHER 11-Astronomy  
L ADAMS  
J BARDEEN

**NAG 5-2294 University of Washington 8306**  
FROM MICROSCALE TO MESOSCALE: SNOWMELT, SOIL MOIS TURE AND EVAPOTRANSPIRATION USING DISTRIBUTED. .  
*Period Obligations*  
06/22/1993-06/30/1994 FY93: \$20,000 TOTAL: \$20,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D P LETTENMAIER GSFC/F G HALL 39-Env Sci, NEC  
...../P SELLERS

**NAG 5-2303 University of Washington 8307**  
EUVE SPECTROSCOPY OF EXPOSED WDS IN 3 CATAclysmic VARIABLES: PROBING ACCRETION PHYSICS  
*Period Obligations*  
06/30/1993-07/14/1994 FY93: \$20,000 TOTAL: \$20,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
P A SZKODY GSFC/R OLIVERSEN 11-Astronomy

**NAG 5-2315 University of Washington 8308**  
COORDINATED VOYAGER OBSERVATIONS OF V603 AQI  
*Period Obligations*  
07/12/1993-07/14/1994 FY93: \$5,000 TOTAL: \$5,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
P SZKODY GSFC/R OLIVERSEN 11-Astronomy

**NAG 5-2356 University of Washington 8309**  
TARGET OF OPPORTUNITY: TT CRT AND YY DRA AT OUTBU RST  
*Period Obligations*  
08/26/1993-09/14/1994 FY93: \$2,000 TOTAL: \$2,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
P SZKODY GSFC/D WEST 11-Astronomy

**NASA'S UNIVERSITY PROGRAM  
WASHINGTON (Continued)**

**NAG 5-5011 University of Washington 8310**  
ELECTRIC FIELD AND OPTICAL STUDIES OF LIGHTNING GENERATED PULSES  
*Period* *Obligations*  
05/12/1993-12/31/1993 FY93: \$65,100 TOTAL: \$65,100  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R H HOLZWORTH GSFC/L J EARLY 13-Physics  
...../R H PLESS

**NAG 8-207 University of Washington 8311**  
PULSE TIMING STUDIES OF X-RAY PULSARS  
*Period* *Obligations*  
08/28/1991-12/25/1993 FY93: \$25,621 TOTAL: \$125,676  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J E DEETER MSFC/J VARGAS 11-Astronomy  
P E BOYNTON

**NAG 8-695 University of Washington 8312**  
GRANT ENTITLED 'PULSE-TIMING STUDIES OF ROTATING NEUTRON STARS.'  
*Period* *Obligations*  
01/01/1988-12/31/1991 FY93: \$798 TOTAL: \$243,073  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J E DEETER MSFC/J VARGAS 11-Astronomy

**NAG 9-84 University of Washington 8313**  
STUDY FORMATION OF CUMULATE ROCKS  
*Period* *Obligations*  
03/01/1984-05/01/1994 FY93: \$0 TOTAL: \$437,001  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
I S MCCALLUM JSC/I D BROWNE 32-Geological Sci

**NAG 9-604 University of Washington 8314**  
MECHANOSENSORY TRANSDUCTION IN MAMMALIAN CILIATED CELLS  
*Period* *Obligations*  
05/15/1992-06/01/1994 FY93: \$60,000 TOTAL: \$119,991  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
P VERDUGO JSC/C F SAMS 51-Biological Sci

**NAG 9-637 University of Washington 8315**  
LPEF CRATER CHEMISTRY  
*Period* *Obligations*  
09/02/1992-09/01/1993 FY93: \$30,000 TOTAL: \$30,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
D E BROWNLEE JSC/F HORZ 11-Astronomy

**NAG 9-683 University of Washington 8316**  
LDEF MICROCRATER ANALYSIS  
*Period* *Obligations*  
04/26/1993-11/01/1994 FY93: \$30,000 TOTAL: \$30,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
D E BROWNLEE JSC/M ZOLENSKY 11-Astronomy

**NAG 9-703 University of Washington 8317**  
DEVELOPMENT AND IMPLEMENTATION OF PREFLIGHT ADAPTATION  
*Period* *Obligations*  
08/30/1993-08/01/1994 FY93: \$50,000 TOTAL: \$50,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
D E PARKER JSC/D L HARM 56-Medical Sciences

**NAGW 328 University of Washington 8318**  
IMPACT CRATER SCALING LAWS  
*Period* *Obligations*  
06/01/1982-10/31/1993 FY93: \$44,950 TOTAL: \$483,891  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
K A HOLSAPPLE HQ/J R UNDERWOOD 32-Geological Sci  
...../J M BOYCE

**NAGW 471 University of Washington 8319**  
INVESTIGATIONS OF STATOSPHERIC DYNAMICS AND TRANSPORT USING NIMBUS SATELLITE DATA  
*Period* *Obligations*  
06/02/1983-01/31/1994 FY93: \$45,000 TOTAL: \$1,250,616  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
C B LEOVY HQ/R D MCPETERS 31-Atmos Sci  
D L HARTMAN ...../M J PRATHER

**NAGW 662 University of Washington 8320**  
WANE DYNAMICS AND TRANSPORT IN THE STRATOSPHERE  
*Period* *Obligations*  
12/01/1984-12/31/1993 FY93: \$103,499 TOTAL: \$1,116,245  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J R HOLTON HQ/R D MCPETERS 31-Atmos Sci  
...../M J PRATHER

**NAGW 844 University of Washington 8321**  
ISOTOPIC BIOGEOCHEMICAL STUDY OF WETLAND METHANE  
*Period* *Obligations*  
10/01/1985-06/30/1994 FY93: \$175,365 TOTAL: \$1,505,409  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
P D QUAY HQ/M J KURYLO 39-Env Sci, NEC  
S L KING ...../R T WATSON  
G FARWELL

**NAGW 889 University of Washington 8322**  
COASTAL SYSTEMS OF WASHINGTON  
*Period* *Obligations*  
04/01/1986-01/31/1993 FY93: \$0 TOTAL: \$674,897  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
M J PERRY HQ/M R LEWIS 33-Oceanography  
...../W S WILSON

**NAGW 1007 University of Washington 8323**  
CHLOROPHYLL DISTRIBUTION FROM COASTAL ZONE COLOR SCANNER  
*Period* *Obligations*  
12/01/1986-02/28/1993 FY93: \$0 TOTAL: \$597,045  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
K BANSE HQ/M R LEWIS 33-Oceanography  
...../W S WILSON

**NAGW 1163 University of Washington 8324**  
WIDE BINARY STARS AS A PROBE OF DARK GALACTIC MATTER  
*Period* *Obligations*  
08/15/1987-11/30/1992 FY93: \$0 TOTAL: \$121,819  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
B MARGON HQ/G CLAYTON 11-Astronomy

**NAGW 1256 University of Washington 8325**  
SEA ICE TYPE DISCRIMINATION USING POLARIMETRIC SYNTHETIC  
*Period* *Obligations*  
12/22/1987-02/28/1994 FY93: \$102,602 TOTAL: \$513,206  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
D P WINEBRENNER HQ/R H THOMAS 33-Oceanography  
...../W S WILSON

**NASA'S UNIVERSITY PROGRAM  
WASHINGTON (Continued)**

**NAGW 1317 University of Washington 8326**  
REGIONAL PATTERNS OF SOIL FORMATION AND PALEOMATIC  
INFERENCES  
*Period* *Obligations*  
05/25/1988-12/31/1991 FY93: \$0 TOTAL: \$792,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
A R GILLESPIE HQ/M BALTUCK 39-Env Sci, NEC  
...../T J PIEPER

**NAGW 1319 University of Washington 8327**  
ROCK WEATHERING AND GEOBOTANY  
*Period* *Obligations*  
06/22/1988-12/31/1991 FY93: \$0 TOTAL: \$669,954  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J B ADAMS HQ/M BALTUCK 32-Geological Sci  
...../T J PIEPER

**NAGW 1322 University of Washington 8328**  
RELATIONSHIPS BETWEEN WIND, WAVES, AND RADAR  
BACKSCATTER  
*Period* *Obligations*  
06/27/1988-11/30/1993 FY93: \$67,000 TOTAL: \$359,418  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
K B KATSAROS HQ/G S LAGERLOEF 33-Oceanography  
...../W S WILSON

**NAGW 1436 University of Washington 8329**  
SATELLITE STUDIES OF ICE EDGE AND POLYNYA PROCESSES  
*Period* *Obligations*  
08/12/1988-12/31/1993 FY93: \$102,479 TOTAL: \$517,185  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
S MARTIN HQ/R H THOMAS 33-Oceanography  
...../W S WILSON

**NAGW 1605 University of Washington 8330**  
ZONALLY-AVERAGED MODEL OF DYNAMIC CHEMISTRY  
*Period* *Obligations*  
12/30/1988-11/30/1993 FY93: \$100,000 TOTAL: \$468,029  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
K K TUNG HQ/R D MCPETERS 31-Atmos Sci  
...../M J PRATHER

**NAGW 1688 University of Washington 8331**  
EVALUATION OF CLOUD WATER, RAIN RATE AND WIND ESTIMATE  
*Period* *Obligations*  
02/23/1989-12/31/1992 FY93: \$0 TOTAL: \$504,172  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
K B KATSAROS HQ/J C DODGE 31-Atmos Sci  
...../J S THEON

**NAGW 1702 University of Washington 8332**  
THEORY AND APPLICATIONS OF DISCRETE SCATTERER MODELS  
*Period* *Obligations*  
03/17/1989-12/31/1993 FY93: \$61,931 TOTAL: \$253,610  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
L TSANG HQ/G ASRAR 13-Physics  
...../T J PIEPER

**NAGW 1734 University of Washington 8333**  
OPTICAL PROPERTIES OF CO<sub>2</sub>-ICE AND CO<sub>2</sub>-SNOW IN THE  
VISIBLE  
*Period* *Obligations*  
05/01/1989-11/30/1992 FY93: \$0 TOTAL: \$71,158  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
S G WARREN HQ/J R UNDERWOOD 32-Geological Sci

**NAGW 1770 University of Washington 8334**  
MESOSCALE STORMS/FRONTS STUDY W/SATELLITE WINDS  
*Period* *Obligations*  
06/09/1989-09/30/1993 FY93: \$0 TOTAL: \$290,950  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R A BROWN HQ/J C DODGE 31-Atmos Sci  
...../J THEON

**NAGW 2009 University of Washington 8335**  
MICROBURST ELECTRON PRECIPITATION  
*Period* *Obligations*  
05/05/1990-09/30/1992 FY93: \$0 TOTAL: \$50,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
G K PARKS HQ/M M MELLOTT 13-Physics  
...../T PERRY

**NAGW 2041 University of Washington 8336**  
MARTIAN ATMOSPHERIC HEAT FLUX ESTIMATION: LANDER 1  
PRIMARY MISSION  
*Period* *Obligations*  
06/13/1990-06/30/1993 FY93: \$0 TOTAL: \$223,265  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J E TILLMAN HQ/J T BERGSTRALH 11-Astronomy

**NAGW 2156 University of Washington 8337**  
NAGW-2156/UNIV OF WASHINGTON/DEVELOPMENT OF IMAGE  
ANALYSIS EQUIPMENT AND TECHNOLOGIES FOR EFFICIENT  
*Period* *Obligations*  
07/10/1990-09/03/1993 FY93: \$0 TOTAL: \$38,174  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R J WILKES HQ/W V JONES 13-Physics  
...../J C LING

**NAGW 2275 University of Washington 8338**  
NAGW-2275/UNIV WASHINGTON/SPECTRAL REFLECTANCE OF  
PLANETARY SURFACES  
*Period* *Obligations*  
02/14/1991-10/31/1993 FY93: \$50,000 TOTAL: \$140,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J B ADAMS HQ/T A MAXWELL 32-Geological Sci

**NAGW 2407 University of Washington 8339**  
POLAR EXCHANGE AT THE SEA SURFACE (POLES); THE INT  
ERACTION OF OCEANS, ICE, AND ATMOSPHERE  
*Period* *Obligations*  
04/11/1991-12/31/1993 FY93: \$899,026 TOTAL: \$2,298,565  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
D A ROTHROCK HQ/R H THOMAS 33-Oceanography  
S MARTIN ...../W S WILSON  
R BROWN

**NAGW 2477 University of Washington 8340**  
MARS: WIND, TEMPERATURE, PRESSURE, AND OPTICAL DEP TH  
FOR 1.5 YEARS AT LANDER L AND 2; VIKING COMPUT  
*Period* *Obligations*  
07/25/1991-02/28/1992 FY93: \$0 TOTAL: \$36,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J TILLMAN HQ/W L QUAIDE 31-Atmos Sci

**NASA'S UNIVERSITY PROGRAM  
WASHINGTON (Continued)**

**NAGW 2512 University of Washington 8341**  
SEA ICE MOTION IN THE PACIFIC SECTOR OF THE ARCTIC BASIN  
*Period* *Obligations*  
07/10/1991-04/30/1994 FY93: \$81,556 TOTAL: \$268,136  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R COLONY HQ/R H THOMAS 33-Oceanography  
....R A SCHIFFER

**NAGW 2513 University of Washington 8342**  
SAR AND MICROWAVE REMOTE SENSING OF SEA ICE AND POLAR OCEANS  
*Period* *Obligations*  
08/16/1991-03/31/1994 FY93: \$150,634 TOTAL: \$521,723  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
D A ROTHROCK HQ/R H THOMAS 33-Oceanography

**NAGW 2523 University of Washington 8343**  
COSMIC EVOLUTION  
*Period* *Obligations*  
05/23/1991-12/31/1993 FY93: \$135,000 TOTAL: \$360,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
C J HOGAN HQ/G S KUTTER 11-Astronomy  
....G R RIEGLER

**NAGW 2550 University of Washington 8344**  
NAGW-25560/UNIV WASHINGTON/MARS 1994 - PARTICIPATING SCIENTIST  
*Period* *Obligations*  
06/10/1991-09/30/1993 FY93: \$1,900 TOTAL: \$32,684  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
C LEOVY HQ/W L QUAIDE 19-Phys Sci, NEC

**NAGW 2556 University of Washington 8345**  
DEVELOPMENT OF SPATIALLY DISTURBED SNOWMELT MODELS FOR ASSESSING CLIMATE CHANGE IMPACTS  
*Period* *Obligations*  
06/13/1991-02/28/1994 FY93: \$111,375 TOTAL: \$311,533  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
D P LETTERMAIER HQ/G ASRAR 39-Env Sci, NEC  
D MARKS ....J S THEON

**NAGW 2569 University of Washington 8346**  
COSMIC BACKGROUND RADIATION AND COSMIC EVALUATION  
*Period* *Obligations*  
06/24/1991-03/31/1994 FY93: \$56,000 TOTAL: \$180,700  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
C J HOGAN HQ/L J CAROFF 11-Astronomy

**NAGW 2574 University of Washington 8347**  
A COUPLED THERMODYNAMIC/STRONG FLUCTUATION THEORY MODEL OF MICROWAVE EMISSION FROM ICE IN POLAR OCEANS  
*Period* *Obligations*  
08/16/1991-12/31/1993 FY93: \$84,013 TOTAL: \$256,888  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
T C GRENFELL HQ/R H THOMAS 33-Oceanography  
G A MAYKUT ....R A SCHIFFER

**NAGW 2633 University of Washington 8348**  
CLIMATE PROCESSES OVER THE OCEAN  
*Period* *Obligations*  
07/15/1991-12/31/1993 FY93: \$484,000 TOTAL: \$1,324,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
D L HARTMANN HQ/J C DODGE 31-Atmos Sci  
....W S WILSON

**NAGW 2652 University of Washington 8349**  
NAGW-2652/UNIV WASHINGTON/THE REGIONAL AMAZON MODE L: SYNOPTIC SCALE HYDROLOGICAL AND BIOGEOCHEMICAL C  
*Period* *Obligations*  
07/25/1991-12/31/1993 FY93: \$830,000 TOTAL: \$1,990,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J E RICHEY HQ/R E MURPHY 39-Env Sci, NEC  
....W S WILSON

**NAGW 2676 University of Washington 8350**  
LOW MASS STARS AS DARK MATTER  
*Period* *Obligations*  
08/06/1991-04/30/1994 FY93: \$40,100 TOTAL: \$112,600  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
G LAKE HQ/G S KUTTER 11-Astronomy  
....G R RIEGLER

**NAGW 2743 University of Washington 8351**  
MAPPING ANTARCTIC OZONE IN THE 1970'S  
*Period* *Obligations*  
09/19/1991-12/31/1993 FY93: \$66,362 TOTAL: \$158,777  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
S G WARREN HQ/J A KAYE 31-Atmos Sci  
....R E MURPHY

**NAGW 2784 University of Washington 8352**  
OUTER LIMIT PROJECT AT MONTLAKE  
*Period* *Obligations*  
12/02/1991-09/30/1992 FY93: \$0 TOTAL: \$4,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
P SZKODY HQ/L S LAPIANA 11-Astronomy

**NAGW 2819 University of Washington 8353**  
COMPARATIVE STUDY OF X-RAY AND MICROWAVE EMISSIONS DURING SOLAR FLARES  
*Period* *Obligations*  
01/15/1992-06/30/1993 FY93: \$0 TOTAL: \$48,767  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R M WINGLEE HQ/W WAGNER 13-Physics

**NAGW 2888 University of Washington 8354**  
SMALL-SCALE VARIABILITY OF INFRARED SEA SURFACE TEMPERATURE  
*Period* *Obligations*  
02/20/1992-12/31/1993 FY93: \$101,102 TOTAL: \$201,313  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
A T JESSUP HQ/J S THEON 33-Oceanography

**NAGW 2982 University of Washington 8355**  
MICRO WEATHER STATIONS FOR IN-SITU MEASUREMENTS IN THE MARTIAN PLANETARY BOUNDARY LAYER  
*Period* *Obligations*  
03/16/1992-12/31/1993 FY93: \$38,714 TOTAL: \$75,181  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J E TILLMAN HQ/W L QUAIDE 19-Phys Sci, NEC



**NASA'S UNIVERSITY PROGRAM  
WASHINGTON (Continued)**

**NAGW 3026 University of Washington 8356**  
STUDY OF PRIMARY COSMIC RAY ELECTRONS OF RELATIVISTIC ENERGIES  
*Period* *Obligations*  
04/03/1992-02/28/1993 FY93: \$0 TOTAL: \$40,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R J WILKES HQ/W V JONES 13-Physics  
...../J D BOHLIN

**NAGW 3158 University of Washington 8357**  
SPACE SPECTROSCOPY OF THE WHITE DWARFS IN CATAclysmic VARIABLES  
*Period* *Obligations*  
08/14/1992-07/31/1994 FY93: \$0 TOTAL: \$119,315  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
P SZKODY HQ/G R RIEGLER 11-Astronomy

**NAGW 3174 University of Washington 8358**  
NAGW-3174/UNIV WASHINGTON/SEA ICE AND OCEAN CONVECTION  
*Period* *Obligations*  
09/29/1992-11/30/1993 FY93: \$125,111 TOTAL: \$224,627  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
K AAGAARD HQ/R H THOMAS 33-Oceanography  
...../R A SCHIFFER

**NAGW 3195 University of Washington 8359**  
NAGW-3195/UNIV WASHINGTON/EVALUATION OF THE FEASIBILITY OF DETERMINING CANOPY CHEMISTRY  
*Period* *Obligations*  
09/17/1992-03/31/1993 FY93: \$0 TOTAL: \$75,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J B ADAMS HQ/D F WICKLAND 39-Env Sci, NEC  
...../A C JANETOS

**NAGW 3251 University of Washington 8360**  
NAGW-3251/UNIV WASHINGTON/MAKING THE INVISIBLE: TECHNIQUES  
*Period* *Obligations*  
10/30/1992-07/31/1993 FY93: \$4,994 TOTAL: \$4,994  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
C J HOGAN HQ/L LAPIANA 11-Astronomy  
...../G P NEWTON

**NAGW 3287 University of Washington 8361**  
NAGW-3287/UNIV WASHINGTON @ SEATTLE/INTERPLANETARY DUST  
*Period* *Obligations*  
11/27/1992-12/14/1993 FY93: \$192,537 TOTAL: \$192,537  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
D B BROWNLEE HQ/H C BRINTON 32-Geological Sci

**NAGW 3352 University of Washington 8362**  
NAGW-3352/UNIV WASHINGTON/THE FORMATION OF CUMULATE ROCKS  
*Period* *Obligations*  
01/26/1993-12/14/1993 FY93: \$30,000 TOTAL: \$30,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
I S MCCALLUS HQ/H C BRINTON 32-Geological Sci

**NAGW 3381 University of Washington 8363**  
NUMERICAL MODEL STUDIES OF THE MARTIAN MESOSCALE CIRCULATIONS  
*Period* *Obligations*  
02/16/1993-02/28/1994 FY93: \$14,951 TOTAL: \$14,951  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J E TILLMAN HQ/H C BRINTON 19-Phys Sci, NEC

**NAGW 3475 University of Washington 8364**  
CLOUDS, LARGE SCALE INTERACTIONS AND CLIMATE  
*Period* *Obligations*  
03/25/1993-12/31/1993 FY93: \$144,039 TOTAL: \$144,039  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
D L HARTMAN HQ/J C DODGE 31-Atmos Sci  
...../R A SCHIFFER

**NAGW 3527 University of Washington 8365**  
SCATTERMETER MODEL FUNCTION DEVELOPMENT  
*Period* *Obligations*  
04/14/1993-02/28/1994 FY93: \$70,975 TOTAL: \$70,975  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
W J PLANT HQ/J S THEON 32-Geological Sci

**NAGW 3528 University of Washington 8366**  
NAGW-3528/UNIV WASHINGTON/AUTOMATED ANALYSIS OF ULTRA HIGH ENERGY COSMIC RAY EVENTS  
*Period* *Obligations*  
04/21/1993-02/28/1994 FY93: \$70,000 TOTAL: \$70,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R WILKES HQ/W V JONES 13-Physics  
...../G L WITHBROE

**NAGW 3606 University of Washington 8367**  
PATTERNS OF CZCS OBSERVED PLANT PIGMENT IN REGIONS OF PRESENT OR FUTURE JGOFS WORK  
*Period* *Obligations*  
05/28/1993-02/28/1994 FY93: \$141,119 TOTAL: \$141,119  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
K BANSE HQ/R E MURPHY 33-Oceanography

**NAGW 3636 University of Washington 8368**  
COMPARISON OF INTERPLANETARY AND INTERSTELLAR GRAIN SODLING  
*Period* *Obligations*  
06/17/1993-05/31/1994 FY93: \$19,086 TOTAL: \$19,086  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
D BROWNLEE HQ/J A NUTH III 19-Phys Sci, NEC

**NAGW 3647 University of Washington 8369**  
A WETNET STUDY OF WINDS, STORMS AND AIR-SEA FLUX MODELING  
*Period* *Obligations*  
06/29/1993-03/31/1994 FY93: \$120,130 TOTAL: \$120,130  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R A BROWN HQ/J C DODGE 31-Atmos Sci

**NAGW 3650 University of Washington 8370**  
EQUATORIAL PLASMA RESEARCH  
*Period* *Obligations*  
07/09/1993-02/28/1994 FY93: \$101,000 TOTAL: \$101,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
G K PARKS HQ/E C WHIPPLE 13-Physics  
...../J D BOHLIN

**NASA'S UNIVERSITY PROGRAM  
WASHINGTON (Continued)**

**NAGW 3750 University of Washington 8371**  
AEROSOLS FROM BIOMASS BURNING IN THE TROPICAL SAVANNAH  
*Period Obligations*  
09/23/1993-05/31/1994 FY93: \$65,000 TOTAL: \$65,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
P V HOBBS HQ/J T SUTTLES 31-Atmos Sci  
....A C JANETOS

**NAGW 3755 University of Washington 8372**  
PLASMA DESMATS AND THE CONTROL OF GRAVITROPISM  
*Period Obligations*  
09/28/1993-09/30/1994 FY93: \$60,000 TOTAL: \$60,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R E CLELAND HQ/T W HALSTEAD 51-Biological Sci

**NAG10-77 University of Washington 8373**  
ROLL OF EXTRACELLULAR CALCIUM IN PLANT GRAVITROPISM  
*Period Obligations*  
08/20/1990-08/19/1993 FY93: \$0 TOTAL: \$210,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R E CLELAND KSC/W M KNOTT 51-Biological Sci

**NAS 1-18157 University of Washington 8374**  
SCIENCE SUPPORT FOR ERBE \$100,000 OBLIGATED  
*Period Obligations*  
10/11/1985-10/10/1993 FY93: \$0 TOTAL: \$1,207,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D L HARTMANN LARC/J E COOPER 31-Atmos Sci  
....B BARKSTROM

**NAS 1-18940 University of Washington 8375**  
SAGE III SCIENCE INVESTIGATION SUPPORT, P.I. PETER V. HOBBS  
*Period Obligations*  
10/27/1989-01/31/1995 FY93: \$20,000 TOTAL: \$55,100  
*Prin. Invest. NASA Tech. Officer CASE Category*  
P V HOBBS LARC/G MADDREA 19-Phys Sci, NEC

**NAS 5-26301 University of Washington 8376**  
WAVE DYNAMICS AND TRANSPORT IN THE MIDDLE ATMOSPHERE  
*Period Obligations*  
09/29/1980-04/01/1994 FY93: \$379,973 TOTAL: \$1,527,327  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J R HOLTON GSFC/C REBER 31-Atmos Sci

**NAS 5-26850 University of Washington 8377**  
PROVIDE DEFINITION PHASE STUDY OF A FAST AND VERSATILE 3-D PLASMA EXPERIMENT FOR THE OPEN PROJECT  
*Period Obligations*  
05/04/1982-06/30/1994 FY93: \$141,200 TOTAL: \$918,740  
*Prin. Invest. NASA Tech. Officer CASE Category*  
G K PARKS GSFC/J J O'BRIEN 13-Physics

**NAS 5-30613 University of Washington 8378**  
INVESTIGATION DEFINITION PHASE FOR CLUSTER PLASMA SPECTROMETRY  
*Period Obligations*  
02/21/1989-12/31/1995 FY93: \$546,000 TOTAL: \$1,614,056  
*Prin. Invest. NASA Tech. Officer CASE Category*  
G K PARKS GSFC/K STICH 13-Physics

**NAS 5-30684 University of Washington 8379**  
DEFINITION PHASE INVESTIGATION FOR AN X-RAY IMAGING  
*Period Obligations*  
04/17/1990-09/30/1992 FY93: \$0 TOTAL: \$588,956  
*Prin. Invest. NASA Tech. Officer CASE Category*  
G PARKS GSFC/S LAMBROS 31-Atmos Sci

**NAS 5-30774 University of Washington 8380**  
EOS LAWS TEAM MEMBER STUDY  
*Period Obligations*  
04/18/1990-06/14/1993 FY93: \$0 TOTAL: \$125,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R A BROWN GSFC/G SOFFEN 31-Atmos Sci

**NAS 5-31372 University of Washington 8381**  
INTERMEDIATE THERMAL INFRARED RADIOMETER (EOS INVESTIGATION)  
*Period Obligations*  
02/19/1992-12/14/2001 FY93: \$280,000 TOTAL: \$470,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
A R GILLESPIE GSFC/H BLODGET 31-Atmos Sci

**NAS 5-31736 University of Washington 8382**  
EOS SAR SCIENCE TEAM MEMBER INVESTIGATION  
*Period Obligations*  
12/16/1991-06/30/1993 FY93: \$0 TOTAL: \$35,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
W J PLANT GSFC/T HAMILTON 39-Env Sci, NEC

**NCA 2-485 University of Washington 8383**  
VIDEO LUMINESCENT THERMOMETRY FOR AIR FOILS IN WIND TUNNELS  
*Period Obligations*  
01/03/1990-06/15/1993 FY93: \$0 TOTAL: \$75,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
M GOUTERMAN ARC/B MCLACHLAN 12-Chemistry  
J B CALLIS

**NCA 2-623 University of Washington 8384**  
DATA COLLECTION AND EVALUATION OF A NUMERICAL MODEL OF THE DMS-CLOUD-CLIMATE HYPOTHESIS  
*Period Obligations*  
06/18/1991-06/30/1993 FY93: \$0 TOTAL: \$63,764  
*Prin. Invest. NASA Tech. Officer CASE Category*  
P V HOBBS ARC/B TOON 31-Atmos Sci

**NCA 2-658 University of Washington 8385**  
REFERENCE IMAGES FOR LUMINESCENT BAROMETRY  
*Period Obligations*  
10/01/1991-10/15/1993 FY93: \$33,610 TOTAL: \$80,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
M GOUTERMAN ARC/B MCLACHLAN 12-Chemistry  
J B CALLIS

**NCA 2-818 University of Washington 8386**  
A NUMERICAL STUDY OF INSTABILITIES IN THE MARINE ATMOSPHERE  
*Period Obligations*  
05/21/1993-12/31/1993 FY93: \$24,317 TOTAL: \$24,317  
*Prin. Invest. NASA Tech. Officer CASE Category*  
P HOBBS ARC/B TOON 31-Atmos Sci

**NASA'S UNIVERSITY PROGRAM**  
**WASHINGTON (Continued)**

**NCA 2-2002 University of Washington 8387**  
 JOINT SPONSORED RESEARCH AGREEMENT NO. 6 VIDEO LUM  
 INESCENT BAROMETRY  
*Period Obligations*  
 02/25/1993-12/31/1993 FY93: \$120,554 TOTAL: \$120,554  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M GOUTERMAN ARC/B MCLACHLAN 12-Chemistry  
 ....S DAVIS

**NCC 1-156 University of Washington 8388**  
 MULTIRATE DIGITAL CONTROL SYSTEM DESIGN FOR THE PAPA  
 BENCHMARK WING  
*Period Obligations*  
 07/22/1991-07/14/1993 FY93: \$27,582 TOTAL: \$91,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M C BERG LARC/V MUKHOPADHYAY 41-Aero Engr  
 ....M H DURHAM

**NGT 00-030-004 University of Washington 8389**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
 10/02/1990-03/31/1994 FY93: \$0 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M B BAKER HQ/G ASRAR 31-Atmos Sci

**NGT 00-030-005 University of Washington 8390**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
 10/02/1990-12/31/1993 FY93: \$0 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 K K TUNG HQ/G ASRAR 31-Atmos Sci

**NGT 00-030-019 University of Washington 8391**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
 11/02/1990-08/31/1993 FY93: \$0 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A P BARROS HQ/G ASRAR 39-Env Sci, NEC

**NGT 00-030-020 University of Washington 8392**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
 10/23/1990-08/31/1993 FY93: \$0 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 L L LANDRUM HQ/G ASRAR 33-Oceanography

**NGT 00-030-033 University of Washington 8393**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
 12/14/1990-08/31/1993 FY93: \$0 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D HARTMANN HQ/G ASRAR 31-Atmos Sci

**NGT 00-030-035 University of Washington 8394**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
 11/16/1990-08/31/1993 FY93: \$0 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J E MUENCH HQ/G ASRAR 33-Oceanography

**NGT 00-030-043 University of Washington 8395**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
 09/16/1991-08/31/1993 FY93: \$0 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 B M PLOTKIN HQ/D M BUTLER 31-Atmos Sci  
 R GAMMON ....G S WILSON

**NGT 00-030-047 University of Washington 8396**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
 09/19/1991-08/31/1994 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R M PINCUS HQ/D M BUTLER 31-Atmos Sci  
 M BAKER ....G S WILSON

**NGT 00-030-058 University of Washington 8397**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
 08/23/1991-08/31/1994 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J L YOUNG HQ/D M BUTLER 33-Oceanography  
 J MURRAY ....G S WILSON

**NGT 00-030-076 University of Washington 8398**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
 08/30/1991-08/31/1994 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 P W MOTE HQ/D M BUTLER 31-Atmos Sci  
 J R HOLTON ....G S WILSON

**NGT 00-030-085 University of Washington 8399**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
 09/19/1991-08/31/1994 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 C J BEEGLE HQ/D M BUTLER 33-Oceanography  
 R GAMMON ....G S WILSON

**NGT 00-030-087 University of Washington 8400**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
 09/19/1991-08/31/1994 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 N J MANTUA HQ/D M BUTLER 33-Oceanography  
 E SARACHIK ....G S WILSON

**NGT 00-030-092 University of Washington 8401**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
 09/25/1991-08/31/1994 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J R NORRIS HQ/D M BUTLER 31-Atmos Sci  
 C B LEOVY ....G S WILSON

**NGT 00-030-100 University of Washington 8402**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
 11/27/1992-08/31/1994 FY93: \$44,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S E YUTER HQ/G ASRAR 99-Multi-Discip  
 ....J S THEON

**NASA'S UNIVERSITY PROGRAM**  
**WASHINGTON (Continued)**

**NGT 00-030-110 University of Washington 8403**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
 11/02/1992-08/31/1994 FY93: \$44,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D L WORTHEN HQ/G ASRAR 99-Multi-Discip  
 ....D M BUTLER

**NGT 00-050-561 University of Washington 8411**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 07/03/1990-06/30/1993 FY93: \$0 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M GOUTHERMAN HQ/F C OWENS 12-Chemistry  
 J B CALLIS

**NGT 00-030-116 University of Washington 8404**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
 11/02/1992-08/31/1994 FY93: \$44,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 L J CARLSON HQ/G ASRAR 39-Env Sci, NEC  
 ....D M BUTLER

**NGT 00-050-616 University of Washington 8412**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 08/31/1990-12/31/1993 FY93: \$0 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 K BANSE HQ/F C OWENS 33-Oceanography

**NGT 00-030-123 University of Washington 8405**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
 11/02/1992-08/31/1994 FY93: \$44,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 W T WELCH HQ/G ASRAR 99-Multi-Discip  
 ....D M BUTLER

**NGT 00-050-652 University of Washington 8413**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 10/11/1990-08/31/1993 FY93: \$0 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D A ROTHROCK HQ/F C OWENS 31-Atmos Sci

**NGT 00-030-176 University of Washington 8406**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
 09/01/1993-08/31/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R E BREIDENTHAL HQ/G ASRAR 31-Atmos Sci  
 ....D M BUTLER

**NGT 00-050-681 University of Washington 8414**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 10/25/1990-09/30/1993 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M J PERRY HQ/F C OWENS 33-Oceanography

**NGT 00-030-178 University of Washington 8407**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
 09/02/1993-08/31/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 E RISKIN HQ/G ASRAR 22-Computer Science  
 ....D M BUTLER

**NGT 00-050-700 University of Washington 8415**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 07/02/1991-06/30/1994 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J LORD HQ/F C OWENS 13-Physics

**NGT 00-040-011 University of Washington 8408**  
 NATIONAL SPACE GRANT COLLEGE AND FELLOWSHIP PROGRAM  
*Period Obligations*  
 09/29/1989-01/31/1994 FY93: \$348,000 TOTAL: \$1,343,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 G K PARKS HQ/E T SCHWARTZ 99-Multi-Discip

**NGT 00-050-723 University of Washington 8416**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 05/13/1991-06/30/1994 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M WENSMAN HQ/F C OWENS 31-Atmos Sci

**NGT 00-050-443 University of Washington 8409**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 08/14/1989-09/14/1992 FY93: \$0 TOTAL: \$62,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 P V HOBBS HQ/F C OWENS 13-Physics

**NGT 00-050-741 University of Washington 8417**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 06/24/1991-06/30/1992 FY93: \$0 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M GOUTERMAN HQ/F C OWENS 12-Chemistry

**NGT 00-050-514 University of Washington 8410**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 10/04/1989-08/31/1992 FY93: \$0 TOTAL: \$84,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D E BROWNEE HQ/F C OWENS 11-Astronomy

**NGT 00-050-788 University of Washington 8418**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 06/27/1991-09/15/1994 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 G K PARKS HQ/F C OWENS 13-Physics

**NASA'S UNIVERSITY PROGRAM  
WASHINGTON (Continued)**

**NGT 00-050-801 University of Washington 8419**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
06/27/1991-06/30/1993 FY93: \$0 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
A K SOMANI HQ/F C OWENS 45-Elec Engr

**NGT 00-050-812 University of Washington 8420**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
09/17/1991-06/30/1994 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R WEST HQ/J K ALEXANDER 45-Elec Engr

**NGT 00-050-822 University of Washington 8421**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
08/12/1991-09/15/1994 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
S HANKS HQ/F C OWENS 22-Computer Science

**NGT 00-050-933 University of Washington 8422**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
06/29/1992-06/30/1994 FY93: \$22,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
M GOUTERMAN ARC/B HASTINGS 12-Chemistry

**NGT 00-051-001 University of Washington 8423**  
NGT-51001/UNIV WASHINGTON/GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
08/18/1992-08/31/1995 FY93: \$22,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
E J DAVIS HQ/J K ALEXANDER 43-Chem Engr

**NGT 00-051-047 University of Washington 8424**  
GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
07/23/1993-09/15/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
M BAKER MSFC/F SIX 31-Atmos Sci

**NGT 00-051-155 University of Washington 8425**  
GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
08/06/1993-09/15/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R M WINGLEE HQ/D HOLLAND 13-Physics

**NGT 00-070-314 University of Washington 8426**  
NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED MINORITY FOCUS PROGRAM  
*Period Obligations*  
06/29/1993-06/30/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
G LAKE HQ/D K RUSSELL 11-Astronomy

**NGT 00-070-325 University of Washington 8427**  
NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED MINORITY FOCUS PROGRAM  
*Period Obligations*  
07/01/1993-06/30/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
B MARGON HQ/D K RUSSELL 11-Astronomy

**NGT 00-070-357 University of Washington 8428**  
NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED MINORITY FOCUS PROGRAM  
*Period Obligations*  
08/31/1993-08/31/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
N LEVESON HQ/D K RUSSELL 22-Computer Science

**NSG-5395 University of Washington 8429**  
ULTRAVIOLET OBSERVATIONS OF SELECTED CATACLGSMIC VARIABLES  
*Period Obligations*  
07/01/1979-04/14/1993 FY93: \$0 TOTAL: \$273,382  
*Prin. Invest. NASA Tech. Officer CASE Category*  
P SZKODY GSFC/D WEST 11-Astronomy

**NSG-5398 University of Washington 8430**  
OBSERVATIONS OF CLOSSICAL STELLAR CHSOMOSPHERES  
*Period Obligations*  
07/15/1979-01/31/1994 FY93: \$12,590 TOTAL: \$556,492  
*Prin. Invest. NASA Tech. Officer CASE Category*  
E BOHM-VITENSE GSFC/D WEST 11-Astronomy  
D BOGGS

**NSG-7173 University of Washington 8431**  
APPLICATIONS OF SPECTRAL REFLECTANCE OF LUNAR SAMPLES  
*Period Obligations*  
09/26/1975-10/31/1992 FY93: \$0 TOTAL: \$775,180  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J B ADAMS HQ/J UNDERWOOD 32-Geological Sci  
...../J M BOYCE

**NSG-9052 University of Washington 8432**  
STUDY OF INTERPLANETARY DUST  
*Period Obligations*  
03/01/1977-08/01/1993 FY93: \$0 TOTAL: \$2,327,162  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D E BROWNLEE JSC/I D BROWN 31-Atmos Sci

**NAG 3-1387 Washington State University 8433**  
BUBBLE DYNAMICS, TWO-PHASE FLOW AND BOILING HEAT TRANSFER IN A MICROGRAVITY ENVIRONMENT  
*Period Obligations*  
12/23/1992-12/14/1993 FY93: \$105,487 TOTAL: \$105,487  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J N CHUNG LERC/F P CHIARAMONTE 46-Mech Engr

**NAG 9-363 Washington State University 8434**  
RESPONSE TO ELECTRICAL MUSCLE SIMULATION  
*Period Obligations*  
07/01/1989-07/01/1993 FY93: \$0 TOTAL: \$400,275  
*Prin. Invest. NASA Tech. Officer CASE Category*  
P D GOLLNICK JSC/V SCHNEIDER 56-Medical Sciences

# **NASA'S UNIVERSITY PROGRAM WASHINGTON (Continued)**

**NAG 9-545 Washington State University 8435**  
DIFFERENTIAL EFFECTS OF IODINE AND IODIDE ON THYROID  
FUNCTION IN HUMANS  
*Period Obligations*  
09/25/1991-09/01/1994 FY93: \$53,376 TOTAL: \$249,726  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R J BULL JSC/R SAUER 59-Life Sci, NEC

**NAGW 2823 Washington State University 8436**  
DETAILED THREE-DIMENSIONAL RECONSTRUCTION OF ASTEROIDS  
FROM RADAR OBSERVATIONS  
*Period Obligations*  
01/03/1992-01/31/1994 FY93: \$0 TOTAL: \$107,162  
*Prin. Invest. NASA Tech. Officer CASE Category*  
S HUDSON HQ/J K ALEXANDER 11-Astronomy  
....D A HOLLAND

**NAGW 3672 Washington State University 8437**  
PLANT METABOLISM AND CELL WALL FORMATION IN SPACE  
(MICROGRAVITY) AND ON EARTH  
*Period Obligations*  
07/05/1993-04/30/1994 FY93: \$70,000 TOTAL: \$70,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
N G LEWIS HQ/T W HALSTEAD 51-Biological Sci

**NAG10-61 Washington State University 8438**  
CALCIUM MESSENGER SYSTEM IN GRAVITROPIC RESPONSE IN  
PLANTS  
*Period Obligations*  
07/01/1989-09/30/1993 FY93: \$0 TOTAL: \$195,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
B W POOVAIAH KSC/W KNOTT 13-Physics

**NAG10-86 Washington State University 8439**  
PLANT CELL AND CELL WALL FORMATION IN SPACE AND ON  
EARTH  
*Period Obligations*  
05/30/1991-05/31/1993 FY93: \$0 TOTAL: \$140,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
N G LEWIS KSC/W M KNOTT 55-Agriculture Sci

**NCC 2-794 Washington State University 8440**  
INTEGRATE PATTERN COMPLETION AND SYNTACTIC LEARNING IN  
THE CONTEXT OF INTELLIGENT ASSISTANCE FOR FORM..  
*Period Obligations*  
01/01/1993-09/30/1993 FY93: \$50,000 TOTAL: \$50,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J C SCHLIMMER ARC/P E FRIEDLAND 22-Computer Science  
....P LAIRD

**NGT 00-050-904 Washington State University 8441**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
05/21/1992-06/30/1994 FY93: \$22,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J N CHONG HQ/J ALEXANDER 46-Mech Engr

**NGT 00-050-971 Washington State University 8442**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
07/13/1992-06/30/1993 FY93: \$0 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
C PENESHIKI ARC/M MOORE 46-Mech Engr

**NGT 00-051-027 Washington State University 8443**  
GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
06/23/1993-06/30/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
C PEZESHIKI HQ/J T LYNCH 46-Mech Engr

**NAG 8-213 Western Washington University 8444**  
JOVE  
*Period Obligations*  
01/28/1992-07/16/1994 FY93: \$31,069 TOTAL: \$94,569  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D ENGELATON MSFC/F SIX 54-Env Biology  
J HARDY  
R RUGLEY

**NAGW 2714 Whitman College 8445**  
WHAT CONTROLS PHYTOPLANKTON PRODUCTION IN NUTRIENT  
-RICH AREAS OF THE OPEN SEA  
*Period Obligations*  
09/17/1991-05/31/1992 FY93: \$0 TOTAL: \$13,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
S WEILER HQ/A C JANETOS 33-Oceanography  
....D E WICKLAND

## **WEST VIRGINIA**

**NAG 8-255 Fairmont State College 8446**  
JOVE  
*Period Obligations*  
02/03/1993-05/31/1994 FY93: \$29,124 TOTAL: \$29,124  
*Prin. Invest. NASA Tech. Officer CASE Category*  
M S CANLON MSFC/F SIX 99-Multi-Discip

**NAGW 3435 Marshall University 8447**  
DEVELOPMENT OF EXERCISE PRESCRIPTIONS AND EQUIPMENT  
FOR SPACE TRAVEL  
*Period Obligations*  
03/05/1993-12/31/1993 FY93: \$170,000 TOTAL: \$170,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
G A DUDLEY HQ/F SULZMAN 59-Life Sci, NEC

**NAGW 1878 Shepherd College 8448**  
A CONCEPT STUDY FOR A LIFESAT SCIENCE OPERATIONS  
CENTER  
*Period Obligations*  
12/19/1989-04/30/1993 FY93: \$0 TOTAL: \$205,219  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D HENRY HQ/T HALSTEAD 59-Life Sci, NEC

**NASA'S UNIVERSITY PROGRAM**  
**WEST VIRGINIA (Continued)**

**NAG 5-1267 West Virginia State College 8449**  
MAGNETIC INSTRUMENTS OF THE EARTH IONOSPHERE CAVITY  
RESIDENCE  

Period	Obligations	
09/08/1989-02/28/1993	FY93: \$0	TOTAL: \$509,961
Prin. Invest.	NASA Tech. Officer	CASE Category
C SPANIOL	GSFC/J F SUTTON	19-Phys Sci, NEC

**NAG 1-1245 West Virginia University 8450**  
INTERACTION OF A CIRCULAR JET WITH A GROUND PLANE WITH  
AND WITHOUT CROSSFLOW  

Period	Obligations	
03/20/1991-09/30/1992	FY93: \$4,730	TOTAL: \$66,620
Prin. Invest.	NASA Tech. Officer	CASE Category
J M KUHLMAN	LARC/M T KEMMERLY	41-Aero Engr
	....K J KJERSTAD	

**NAG 1-1381 West Virginia University 8451**  
NOTCH EFFECTS IN 2D BRAIDED TEXTILE NEW GRANT  

Period	Obligations	
01/24/1992-01/23/1994	FY93: \$47,215	TOTAL: \$93,315
Prin. Invest.	NASA Tech. Officer	CASE Category
T L NORMAN	LARC/C C POE	47-Materials Engr
	....W C JACKSON	

**NAG 2-590 West Virginia University 8452**  
MUSCLE INJURY AND REPAIR IN ZERO GRAVITY - COSMOS 89  

Period	Obligations	
07/20/1989-12/31/1993	FY93: \$58,200	TOTAL: \$249,098
Prin. Invest.	NASA Tech. Officer	CASE Category
W T STAUBER	ARC/R E GRINDELAND	56-Medical Sciences

**NAG 3-1005 West Virginia University 8453**  
ACOUSTIC FORCING OF A LIQUID DROP  

Period	Obligations	
02/17/1989-02/05/1992	FY93: \$588	TOTAL: \$78,180
Prin. Invest.	NASA Tech. Officer	CASE Category
M J LYEELL	LERC/A T CHAI	19-Phys Sci, NEC

**NAG 5-1488 West Virginia University 8454**  
OPTIMIZE CAPACITIVE SENSORS FOR THE ROBOT ARM PROX IMITY  
SENSING SKIN  

Period	Obligations	
12/18/1990-06/30/1992	FY93: \$0	TOTAL: \$20,000
Prin. Invest.	NASA Tech. Officer	CASE Category
R L MCCONNELL	GSFC/J M VRANISH	45-Elec Engr

**NAG 5-2129 West Virginia University 8455**  
A COLLABORATIVE AND CONCURRENT ENVIRONMENT FOR IV AND  
V  

Period	Obligations	
11/09/1992-11/14/1993	FY93: \$502,734	TOTAL: \$502,734
Prin. Invest.	NASA Tech. Officer	CASE Category
J T JUREWICZ	GSFC/J GITELMAN	22-Computer Science
J R CALLAHAN		
H H AMMAR		

**NAG 8-149 West Virginia University 8456**  
NASA JOVE INITIATIVE  

Period	Obligations	
03/01/1990-06/14/1994	FY93: \$5,000	TOTAL: \$91,668
Prin. Invest.	NASA Tech. Officer	CASE Category
R N ELI	MSFC/C R CHAPPELL	31-Atmos Sci
M J LYEELL	....N F SIX	

**NAGW 2810 West Virginia University 8457**  
THE INDEPENDENT SOFTWARE VALIDATION AND VERIFICATI ON  
FACILITY  

Period	Obligations	
12/20/1991-12/31/1993	FY93: \$9,469,000	TOTAL: \$12,407,000
Prin. Invest.	NASA Tech. Officer	CASE Category
W REEVES	HQ/D BAYON	49-Engr, NEC

**NCC 2-759 West Virginia University 8458**  
DETERMINATION OF STABILITY AND CONTROL DERIVATIVES F O  
THE F/A-18 HARV FROM FLIGHT DATA USING THE.....  

Period	Obligations	
05/20/1992-12/14/1993	FY93: \$29,738	TOTAL: \$70,887
Prin. Invest.	NASA Tech. Officer	CASE Category
M R NAPOLITANO	ARC/A H BOWERS	41-Aero Engr
J M SPAGNUOLO		

**NGT 00-030-193 West Virginia University 8459**  
NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  

Period	Obligations	
08/26/1993-08/31/1994	FY93: \$22,000	TOTAL: \$22,000
Prin. Invest.	NASA Tech. Officer	CASE Category
T WARNER	HQ/G ASRAR	31-Atmos Sci
	....D M BUTLER	

**NGT 00-040-047 West Virginia University 8460**  
NATIONAL SPACE GRANT COLLEGE AND FELLOWSHIP PROGRA M  

Period	Obligations	
07/24/1991-02/28/1994	FY93: \$173,000	TOTAL: \$493,000
Prin. Invest.	NASA Tech. Officer	CASE Category
J T JUVEWICZ	HQ/E T SCHWARTZ	99-Multi-Discip

**NGT 00-050-671 West Virginia University 8461**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  

Period	Obligations	
09/21/1990-06/30/1993	FY93: \$0	TOTAL: \$66,000
Prin. Invest.	NASA Tech. Officer	CASE Category
S N DWIVEDI	HQ/F C OWENS	45-Elec Engr

**NGT 00-050-687 West Virginia University 8462**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  

Period	Obligations	
10/19/1990-06/30/1993	FY93: \$0	TOTAL: \$66,000
Prin. Invest.	NASA Tech. Officer	CASE Category
S DWIVEDI	HQ/F C OWENS	46-Mech Engr

**NGT 00-050-697 West Virginia University 8463**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  

Period	Obligations	
04/30/1991-06/30/1994	FY93: \$22,000	TOTAL: \$66,000
Prin. Invest.	NASA Tech. Officer	CASE Category
S N DWIVEDI	HQ/F C OWENS	46-Mech Engr

**NASA'S UNIVERSITY PROGRAM  
WEST VIRGINIA (Continued)**

**NGT 00-050-752 West Virginia University 8464**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
07/02/1991-06/30/1994 FY93: \$22,000 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
S N DWIVEDI HQ/F C OWENS 46-Mech Engr

**NGT 00-050-868 West Virginia University 8465**  
NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
03/30/1992-06/30/1993 FY93: \$11,000 TOTAL: \$33,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J M KUHLMAN LARC/E J PRIOR 46-Mech Engr

**NGT 00-051-098 West Virginia University 8466**  
GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
06/01/1993-06/30/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
S N DWIVEDI KSC/B MARTIN 46-Mech Engr

**NGT 00-070-143 West Virginia University 8467**  
NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
MINORITY FOCUS PROGRAM  
*Period Obligations*  
07/26/1989-06/30/1992 FY93: \$0 TOTAL: \$62,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
S N DWIVEDI HQ/F C OWENS 55-Agriculture Sci

**NGT 00-070-144 West Virginia University 8468**  
NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
MINORITY FOCUS PROGRAM  
*Period Obligations*  
09/22/1989-06/30/1992 FY93: \$0 TOTAL: \$62,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
S N DWIVEDI HQ/F C OWENS 46-Mech Engr

**NGT 00-070-255 West Virginia University 8469**  
NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
MINORITY FOCUS PROGRAM  
*Period Obligations*  
05/04/1992-06/30/1994 FY93: \$22,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
S N DWIVEDI MSFC/F SIX 46-Mech Engr

**NAGW 2486 Wheeling Jesuit College 8470**  
DESIGN AND CONSTRUCTION MANAGEMENT SERVICES FOR THE  
CLASSROOM OF THE FUTURE PROJECT  
*Period Obligations*  
04/25/1991-04/23/1994 FY93: \$9,650,000 TOTAL: \$10,000,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
T ACKER HQ/F DURSO 99-Multi-Discip

**NAGW 3110 Wheeling Jesuit College 8471**  
CONSTRUCTION OF FACILITIES FOR THE NATL TECHNOLOGY  
TRANSFER CENTER  
*Period Obligations*  
06/21/1992-05/31/1995 FY93: \$0 TOTAL: \$750,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
T S ACKER HQ/F X DURSO 99-Multi-Discip

**NCCW 12 Wheeling Jesuit College 8472**  
CLASSROOM OF THE FUTURE  
*Period Obligations*  
02/13/1991-12/31/1994 FY93: \$2,758,000 TOTAL: \$5,139,250  
*Prin. Invest. NASA Tech. Officer CASE Category*  
C D MILLER HQ/M V PHELPS 99-Multi-Discip

**NCCW 14 Wheeling Jesuit College 8473**  
THE DEVELOPMENT, DEMONSTRATION AND IMPLEMENTATION OF  
NATIONAL TECHNOLOGY TRANSFER CENTER  
*Period Obligations*  
04/24/1991-04/23/1994 FY93: \$11,151,405 TOTAL: \$18,148,405  
*Prin. Invest. NASA Tech. Officer CASE Category*  
L W RIVERS HQ/J ROOT 99-Multi-Discip

**WISCONSIN**

**NAG 5-1620 Beloit College 8474**  
SUPPORT OF HST AND GTO OBSERVATORIES  
*Period Obligations*  
05/28/1991-10/31/1993 FY93: \$72,300 TOTAL: \$201,210  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D J SCHROEDER GSFC/S SOBIESKI 11-Astronomy

**NAG 2-212 Marquette University 8475**  
ALTERATIONS IN SKELETAL MUSCLE WITH DISUSE ATROPHY  
*Period Obligations*  
11/01/1982-01/31/1994 FY93: \$58,200 TOTAL: \$628,170  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R H FITTS ARC/S B ARNAUD 51-Biological Sci  
B R UNSWORTH  
J B COURTRIGHT

**NAG 2-636 Marquette University 8476**  
THE EFFECT OF WEIGHTLESSNESS ON SINGLE MUSCLE FIBER  
FUNCTION IN RHESUS MONKEYS  
*Period Obligations*  
05/17/1990-12/31/1993 FY93: \$110,000 TOTAL: \$360,059  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R H FITTS ARC/C M WINGET 56-Medical Sciences

**NAG 5-2199 Marquette University 8477**  
PARALLEL DECOMPOSITION OPTIMIZATION ALGORITHMS FOR  
LARGE-SCALE NEURAL NETWORK IMPLEMENTATION . . .  
*Period Obligations*  
02/18/1993-11/30/1993 FY93: \$30,000 TOTAL: \$30,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
X FENG GSFC/J R FISCHER 22-Computer Science



**NASA'S UNIVERSITY PROGRAM  
WISCONSIN (Continued)**

**NAG 8-176 Marquette University 8478**  
THERMAL ANALYSIS OF LDEF  
*Period Obligations*  
11/02/1990-11/01/1991 FY93: \$6 TOTAL: \$27,994  
*Prin. Invest. NASA Tech. Officer CASE Category*  
W E BROWER MSFC/A F WHITAKER 47-Materials Engr  
...../M FINCKENOR

**NAG 2-633 Medical College of Wisconsin 8485**  
MORPHOLOGICAL, HISTOCHEMICAL, IMMUNOCYTOCHEMICAL, AND  
ELECTROMYOGRAPHIC INVESTIGATIONS OF SPACE- ...  
*Period Obligations*  
04/27/1990-12/31/1993 FY93: \$71,522 TOTAL: \$227,826  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D A RILEY ARC/C M WINGET 51-Biological Sci  
S ELLIS ....//D SESLINE  
A L HAAS

**NAG 8-237 Marquette University 8479**  
THERMAL ANALYSIS OF LDEF  
*Period Obligations*  
06/05/1992-11/05/1993 FY93: \$0 TOTAL: \$18,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
W E BROWER MSFC/A F WHITAKER 47-Materials Engr  
...../M M FINCKENOR

**NCA 2-577 Univ of Wisconsin-Eau Claire 8486**  
USE OF CAMPUS FACILITIES AND SERVICES BY NASA TO SUPPORT  
A CONFERENCE ON COMETS AND...  
*Period Obligations*  
11/19/1990-07/31/1992 FY93: \$0 TOTAL: \$14,500  
*Prin. Invest. NASA Tech. Officer CASE Category*  
P J THOMAS ARC/C P MCKAY 51-Biological Sci  
...../S CHANG

**NAG 8-256 Marquette University 8480**  
JOVE  
*Period Obligations*  
12/02/1992-05/30/1994 FY93: \$59,000 TOTAL: \$59,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J RICHIE MSFC/F SIX 99-Multi-Discip  
K AKBAY

**NAG 1-1457 University of Wisconsin - La Crosse 8487**  
COSMIC RADIATION  
*Period Obligations*  
09/30/1992-08/31/1993 FY93: \$3,001 TOTAL: \$30,549  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J W NORBURY LARC/F A CUCINOTTA 13-Physics  
...../E J CONWAY

**NAG 8-875 Marquette University 8481**  
STUDY - PARTIAL PRESSURES THERMAL DYNAMICS AND PHASED  
DIAGRAM STUDIES FOR 11-V1 SYSTEMS  
*Period Obligations*  
05/10/1991-05/31/1994 FY93: \$35,000 TOTAL: \$70,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R F BREBRICK MSFC/S L LEHOCZKY 19-Phys Sci, NEC  
...../D C GILLIES

**NAG 1-553 University of Wisconsin - Madison 8488**  
A CONTINENTAL MIDDLE AND HIGH CLOUD PROJECT FOR FIRE  
*Period Obligations*  
01/02/1985-01/31/1994 FY93: \$97,202 TOTAL: \$646,815  
*Prin. Invest. NASA Tech. Officer CASE Category*  
V E SUOMI LARC/T OWENS 31-Atmos Sci  
D P WYLIE ....//T L OWENS

**NAG10-111 Marquette University 8482**  
ANALYSES OF MUSCLE FORM AND FUNCTION STUDY  
*Period Obligations*  
07/15/1992-03/14/1993 FY93: \$0 TOTAL: \$58,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R L SCHELLING KSC/G W HOFFLER 56-Medical Sciences

**NAG 1-882 University of Wisconsin - Madison 8489**  
ANALYZE HIGH SPECTRAL RESOLUTION LIDAR DATA ACQUIRED  
DURING THE FIRE CIRRUS EXPERIMENT  
*Period Obligations*  
05/06/1988-03/31/1994 FY93: \$112,100 TOTAL: \$548,501  
*Prin. Invest. NASA Tech. Officer CASE Category*  
E W ELORANTA LARC/T OWENS 31-Atmos Sci  
...../H S WAGNER

**NAS 9-18768 Marquette University 8483**  
LETTER CONTRACT FOR LIFE SCI EXP- 'THE EFFECTS OF  
WEIGHTLESSNESS ON HUMAN SINGLE MUSCLE FIBER '  
*Period Obligations*  
08/31/1992-04/01/1997 FY93: \$169,995 TOTAL: \$209,995  
*Prin. Invest. NASA Tech. Officer CASE Category*  
R H FITTS JSC/V ELLERBEE 59-Life Sci, NEC

**NAG 1-1177 University of Wisconsin - Madison 8490**  
PARTICIPATION IN THE FIRE PHASE II PROGRAM  
*Period Obligations*  
09/10/1990-08/31/1994 FY93: \$100,000 TOTAL: \$364,995  
*Prin. Invest. NASA Tech. Officer CASE Category*  
W L SMITH LARC/D S MCDUGAL 31-Atmos Sci  
S A ACKERMAN ....//T L OWENS

**NAG 2-552 Medical College of Wisconsin 8484**  
ELECTRON MICROSCOPY, ELECTROMYOGRAPHY, HISTOCHEMIS  
TRY, AND BIOCHEMISTRY OF RAT HINDLIMB MUSCLES  
*Period Obligations*  
12/29/1988-09/30/1993 FY93: \$175,619 TOTAL: \$906,020  
*Prin. Invest. NASA Tech. Officer CASE Category*  
D A RILEY ARC/A D MANDEL 51-Biological Sci

**NAG 1-1403 University of Wisconsin - Madison 8491**  
DYNAMICAL AND CHEMICAL STUDIES OF AIRCRAFT EMISSIONS  
USING SATELLITE DATA AND A 2-D MODEL  
*Period Obligations*  
03/04/1992-02/28/1994 FY93: \$44,735 TOTAL: \$90,625  
*Prin. Invest. NASA Tech. Officer CASE Category*  
M H HITCHMAN LARC/D E SISKIND 31-Atmos Sci

# **NASA'S UNIVERSITY PROGRAM** **WISCONSIN (Continued)**

**NAG 2-568 University of Wisconsin - Madison 8492**  
 SOFT DENSE FIBROUS CONNECTIVE TISSUE RESPONSE TO H  
 INDLIMB SUSPENSION  
*Period* *Obligations*  
 03/15/1989-04/30/1994 FY93: \$58,200 TOTAL: \$403,029  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 A C VAILAS ARC/R E GRINDELAND 56-Medical Sciences

**NAG 3-1299 University of Wisconsin - Madison 8500**  
 FEASABILITY STUDY OF FLYWHEEL LOAD LEVELING ON A 2 0  
 KHZ RESONANT AC DISTRIBUTION LINK  
*Period* *Obligations*  
 10/16/1991-03/31/1992 FY93: \$0 TOTAL: \$25,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 T A LIPO LERC/L M BURROWS 45-Elec Engr  
 ....I G HANSEN

**NAG 2-647 University of Wisconsin - Madison 8493**  
 EVALUATION OF PRIMATE HABITAT DESIGN  
*Period* *Obligations*  
 06/20/1990-03/31/1992 FY93: \$1,208 TOTAL: \$54,764  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 C L COE ARC/C C JOHNSON 54-Env Biology  
 ....A R HARGENS

**NAG 3-1331 University of Wisconsin - Madison 8501**  
 HIGH POWER DENSITY DC/DC CONVERTER FOR ARC JET CON  
 TROL  
*Period* *Obligations*  
 03/17/1992-05/31/1993 FY93: \$0 TOTAL: \$65,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 D M DWAN LERC/J A HAMLEY 45-Elec Engr  
 D W NOVOTNY

**NAG 2-671 University of Wisconsin - Madison 8494**  
 EFFECTS OF HINDLIMB SUSPENSION ON SKELETAL MUSCLE  
 GROWTH  
*Period* *Obligations*  
 08/30/1990-12/31/1993 FY93: \$54,845 TOTAL: \$202,845  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 E SCHULTZ ARC/E M HOLTON 51-Biological Sci

**NAG 3-1393 University of Wisconsin - Madison 8502**  
 THERMOCAPILLARY CONVECTION IN FLOATING ZONES UNDER  
 SIMULATED REDUCED-GRAVITY CONDITIONS  
*Period* *Obligations*  
 12/17/1992-11/30/1993 FY93: \$107,550 TOTAL: \$107,550  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 S KOU LERC/J A SALZMAN 13-Physics  
 ....R L THOMPSON

**NAG 2-769 University of Wisconsin - Madison 8495**  
 RHESUS MONKEY BIOMARKERS  
*Period* *Obligations*  
 03/26/1992-12/31/1993 FY93: \$40,000 TOTAL: \$89,515  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 A C VAILAS ARC/R BALLARD 51-Biological Sci  
 J HEINER

**NAG 3-1447 University of Wisconsin - Madison 8503**  
 FEASIBILITY STUDY OF BATTERY STARTING OF A 3 PHASE 400  
 HZ INDUCTION GEN VIA A 20 KHZ HF RES AC LINK  
*Period* *Obligations*  
 03/09/1993-08/08/1993 FY93: \$28,210 TOTAL: \$28,210  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 T A LIPO LERC/L M TAYLOR 45-Elec Engr  
 ....D D RENZ

**NAG 2-838 University of Wisconsin - Madison 8496**  
 GROWTH OF POTATOES FOR CELSS  
*Period* *Obligations*  
 05/24/1993-01/31/1994 FY93: \$100,115 TOTAL: \$100,115  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 TIBBITTS ARC/R D MACELROY 55-Agriculture Sci  
 ....M KLISS

**NAG 5-81 University of Wisconsin - Madison 8504**  
 RESOLUTION STUDIES AND ENERGY DIAGNOSTICS OF GLOBAL  
 DATA DN CLIMATE MODEL SIMULATION  
*Period* *Obligations*  
 06/15/1980-02/28/1994 FY93: \$150,000 TOTAL: \$1,549,380  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 D R JOHNSON GSFC/R M ATLAS 31-Atmos Sci

**NAG 2-859 University of Wisconsin - Madison 8497**  
 THE O/H, S/H, AND TE DISTRIBUTIONS IN THE GALACTIC P LANE  
*Period* *Obligations*  
 09/23/1993-06/30/1994 FY93: \$30,000 TOTAL: \$30,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 E B CHURCHWELL ARC/C D LAUGHLIN 11-Astronomy  
 J S MATHIS ....C M GILLESPIE JR.

**NAG 5-186 University of Wisconsin - Madison 8505**  
 ULTRAVIOLET STUDIES WITH IUE SATELLITE DATA  
*Period* *Obligations*  
 06/15/1981-08/31/1992 FY93: \$283 TOTAL: \$566,965  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 B D SAVAGE GSFC/D WEST 11-Astronomy  
 L DANLY  
 D L MASSA

**NAG 3-1087 University of Wisconsin - Madison 8498**  
 3-D MOD OF DIESEL SPRAY COMB AND EMISSIONS  
*Period* *Obligations*  
 10/27/1989-09/30/1994 FY93: \$370,000 TOTAL: \$953,010  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 R D REITZ LERC/H L NGUYEN 22-Computer Science  
 ....W T WINTUCKY

**NAG 5-316 University of Wisconsin - Madison 8506**  
 NEW MATHEMATICAL METHODS FOR VARATIONAL OBJECTIVES  
 ANALYSIS OF METEOROLOGICAL INFORMATION  
*Period* *Obligations*  
 05/01/1983-12/31/1991 FY93: \$0 TOTAL: \$762,268  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 G WAHBA GSFC/J PFAENDTNER 31-Atmos Sci  
 R JOHNSON

**NAG 3-1209 University of Wisconsin - Madison 8499**  
 PENDANT ANTI-OXIDANTS FOR HIGH PERFORMANCE MATRIX  
 RESINS  
*Period* *Obligations*  
 10/01/1990-10/31/1993 FY93: \$9,947 TOTAL: \$52,258  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 J P DROSKE LERC/W B ALSTON 12-Chemistry

**NASA'S UNIVERSITY PROGRAM  
WISCONSIN (Continued)**

**NAG 5-594 University of Wisconsin - Madison 8507**  
INVESTIGATION OF SINGLE PHOTON CALORIMETERS FOR X-RAY SPECTROSCOPY  
*Period* *Obligations*  
08/01/1985-09/30/1993 FY93: \$50,000 TOTAL: \$819,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
D MCCAMMON GSFC/R KELLEY 13-Physics  
H GUCKEL  
M JUDA

**NAG 5-647 University of Wisconsin - Madison 8508**  
DEVELOPMENT AND FLIGHT OF WIDE FIELD IMAGING SURVEY POLARMETER  
*Period* *Obligations*  
03/01/1988-06/30/1993 FY93: \$0 TOTAL: \$1,234,866  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
K H NORDSIECK GSFC/L J EARLY 13-Physics  
....R H PLESS

**NAG 5-674 University of Wisconsin - Madison 8509**  
SPARTIAL HETERODYNE SPECTROMETER FOR INVESTIGATION OF INTERSTELLAR FAR ULTRAVIOLET EMISSION LINES  
*Period* *Obligations*  
11/30/1990-01/31/1994 FY93: \$260,000 TOTAL: \$434,999  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R J REYNOLDS GSFC/L J EARLY 13-Physics  
....R H PLESS

**NAG 5-679 University of Wisconsin - Madison 8510**  
COSMIC X-RAY PHYSICS  
*Period* *Obligations*  
03/25/1991-01/31/1994 FY93: \$345,000 TOTAL: \$1,021,871  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
D MCCAMMON GSFC/L J EARLY 13-Physics  
....R H PLESS

**NAG 5-832 University of Wisconsin - Madison 8511**  
A STUDY OF THE LANDOMENTAL CHARACTERISTICS OF INTERSTELLA MATTER  
*Period* *Obligations*  
08/15/1986-08/31/1993 FY93: \$6,930 TOTAL: \$103,930  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J A CARDELLI GSFC/Y KONDO 11-Astronomy  
E W BRUGEL

**NAG 5-902 University of Wisconsin - Madison 8512**  
LIDAR MEASUREMENTS OF BOUNDARY LAYERS, AEROSOL SCATTERING AND CLOUDS DURING PROJECT FIFE  
*Period* *Obligations*  
05/01/1987-12/31/1992 FY93: \$0 TOTAL: \$356,347  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
E W ELORANTA GSFC/P J WETZEL 39-Env Sci, NEC  
....F HALL

**NAG 5-1330 University of Wisconsin - Madison 8513**  
SATELLITE AND ASSEMBILATED DATA ANALYSIS OF CLIMATE  
*Period* *Obligations*  
02/05/1990-10/31/1993 FY93: \$58,000 TOTAL: \$384,140  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
D R JOHNSON GSFC/A ARKING 39-Env Sci, NEC

**NAG 5-1349 University of Wisconsin - Madison 8514**  
FUNDAMENTAL STUDIES OF INTERSTELLA NEUTRAL HYDROGEN  
*Period* *Obligations*  
04/11/1990-12/31/1992 FY93: \$0 TOTAL: \$60,783  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
B D SAVAGE GSFC/D WEST 11-Astronomy

**NAG 5-1416 University of Wisconsin - Madison 8515**  
MODELING ENERGY AND MASS FLUXES PRAIRIE CANOPIES  
*Period* *Obligations*  
08/14/1990-08/31/1993 FY93: \$75,011 TOTAL: \$142,350  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J M NORMAN GSFC/F G HALL 31-Atmos Sci

**NAG 5-1463 University of Wisconsin - Madison 8516**  
DUST IN THE SMALL MAGELLANIC CLOUD  
*Period* *Obligations*  
09/12/1990-10/14/1994 FY93: \$4,997 TOTAL: \$21,797  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
K H NORDSIECK GSFC/D WEST 11-Astronomy

**NAG 5-1579 University of Wisconsin - Madison 8517**  
X-RAY EMISSION FROM NEAR-MAIN SEQUENCE O AND B STA RS  
*Period* *Obligations*  
05/01/1991-05/14/1993 FY93: \$0 TOTAL: \$30,004  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
J P CASSINELLI GSFC/R PETRE 11-Astronomy

**NAG 5-1586 University of Wisconsin - Madison 8518**  
A FACILITY TEAM MEMBER FOR A TROPICAL RAINFALL AND ENERGY ANALYSIS EXPERIMENT  
*Period* *Obligations*  
05/13/1991-05/31/1994 FY93: \$35,000 TOTAL: \$215,500  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
V E SUOMI GSFC/R ADLER 31-Atmos Sci

**NAG 5-1609 University of Wisconsin - Madison 8519**  
VENUS IN MOTION: AN ANIMATED VIDEO CATALOG  
*Period* *Obligations*  
05/22/1991-06/14/1993 FY93: \$40,731 TOTAL: \$80,734  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
S S LIMAYE GSFC/L D TRAVIS 31-Atmos Sci

**NAG 5-1613 University of Wisconsin - Madison 8520**  
GTO - HIGH SPEED PHOTOMETER  
*Period* *Obligations*  
05/23/1991-10/31/1993 FY93: \$730,460 TOTAL: \$2,901,100  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
R C BLESS GSFC/S SOBIESKI 11-Astronomy

**NAG 5-1659 University of Wisconsin - Madison 8521**  
PRECIPITATION RETRIEVALS FROM PASSIVE MICROWAVE SATELLITE OBSERVATIONS  
*Period* *Obligations*  
10/15/1991-10/14/1993 FY93: \$32,448 TOTAL: \$62,448  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
W S OLSON GSFC/C KUMMEROW 31-Atmos Sci

**NASA'S UNIVERSITY PROGRAM**  
**WISCONSIN (Continued)**

**NAG 5-1665 University of Wisconsin - Madison 8522**  
 INTERSTELLAR X-RAY EMISSION IN OTHER GALAXIES  
*Period Obligations*  
 06/24/1991-06/30/1993 FY93: \$0 TOTAL: \$24,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D MCCAMMON GSFC/R PETRE 11-Astronomy

**NAG 5-1889 University of Wisconsin - Madison 8530**  
 PARTICIPATION IN THE STORM-FEST PROGRAM WITH THE A  
 IRCRAFT HIGH RESOLUTION INTERFEROMETER SOUNDER. .  
*Period Obligations*  
 01/27/1992-10/31/1992 FY93: \$59 TOTAL: \$109,941  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 W L SMITH GSFC/O W THIELE 31-Atmos Sci

**NAG 5-1683 University of Wisconsin - Madison 8523**  
 A SEARCH FOR X-RAY EMISSIONS FROM B SUPERGIANTS  
*Period Obligations*  
 07/15/1991-07/14/1993 FY93: \$30,000 TOTAL: \$57,477  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J P CASSINELLI GSFC/R PETRE 11-Astronomy

**NAG 5-1893 University of Wisconsin - Madison 8531**  
 MONITORING THE X-RAY LIGHT CURVES OF RECENT NOVAE  
*Period Obligations*  
 02/10/1992-02/14/1994 FY93: \$5,900 TOTAL: \$14,110  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 H B OGELMAN GSFC/R PETRE 11-Astronomy

**NAG 5-1726 University of Wisconsin - Madison 8524**  
 A STUDY OF GALACTIC DIFFUSE X-RAY BACKGROUNDS  
*Period Obligations*  
 08/01/1991-07/31/1993 FY93: \$0 TOTAL: \$17,500  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 W T SANDERS GSFC/R PETRE 11-Astronomy

**NAG 5-1894 University of Wisconsin - Madison 8532**  
 SOFT X-RAY SHADOWS OF CLOUDS NEAR THE URSA MAJOR N  
*Period Obligations*  
 02/10/1992-02/14/1994 FY93: \$40,000 TOTAL: \$69,921  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 W T SANDERS GSFC/R PETRE 11-Astronomy

**NAG 5-1740 University of Wisconsin - Madison 8525**  
 IUE OBSERVATIONS OF SELECTED HOT STARS COORDINATED WITH  
 WUPPE  
*Period Obligations*  
 08/15/1991-08/31/1993 FY93: \$0 TOTAL: \$14,300  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 K S BJORKMAN GSFC/D WEST 11-Astronomy

**NAG 5-1998 University of Wisconsin - Madison 8533**  
 SCIENCE LIBRARY KITS - SCALES, SIZES, MOTIONS, AND  
 PICTURES  
*Period Obligations*  
 06/12/1992-06/14/1993 FY93: \$0 TOTAL: \$2,778  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A C CODE GSFC/D WEST 11-Astronomy

**NAG 5-1806 University of Wisconsin - Madison 8526**  
 THE DENSITY AND KINEMATICAL STRUCTURE OF THE GALAC TIC  
 HALO  
*Period Obligations*  
 11/01/1991-10/31/1993 FY93: \$0 TOTAL: \$19,998  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 B SAVAGE GSFC/D WEST 11-Astronomy

**NAG 5-2034 University of Wisconsin - Madison 8534**  
 THEORIES OF NON-CATASTROPHIC GAMMA-RAY BURSTS AND  
 TRANSIENTS  
*Period Obligations*  
 07/17/1992-07/31/1994 FY93: \$24,000 TOTAL: \$40,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 W KLIZNIAK GSFC/J P NORRIS 11-Astronomy  
 ....N WHITE

**NAG 5-1817 University of Wisconsin - Madison 8527**  
 DERIVATION OF THE SOFT X-RAY DIFFUSE BACKGROUND DI  
 STRIBUTION FROM THE ROSAT ALL-SKY SURVEY  
*Period Obligations*  
 09/30/1991-09/30/1993 FY93: \$103,000 TOTAL: \$204,413  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D MCCAMMON GSFC/R PETRE 11-Astronomy

**NAG 5-2035 University of Wisconsin - Madison 8535**  
 SEARCH FOR TRANSIENT EMISSIONS ABOVE 30 MEV  
*Period Obligations*  
 07/17/1992-07/31/1994 FY93: \$0 TOTAL: \$5,760  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 W F FRY GSFC/J P NORRIS 11-Astronomy  
 ....N WHITE

**NAG 5-1841 University of Wisconsin - Madison 8528**  
 X-RAY EMISSION FROM O-STARS  
*Period Obligations*  
 12/02/1991-12/14/1993 FY93: \$0 TOTAL: \$16,835  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J P CASSINELLI GSFC/R PETRE 11-Astronomy

**NAG 5-2066 University of Wisconsin - Madison 8536**  
 EXPLORING THE HOT GALACTIC HALO USING SHADOWS OF H  
 IGH LATITUDE CLOUDS  
*Period Obligations*  
 08/05/1992-08/14/1993 FY93: \$0 TOTAL: \$20,999  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M JUDA GSFC/R PETRE 11-Astronomy

**NAG 5-1852 University of Wisconsin - Madison 8529**  
 GODDARD HIGH RESOLUTION SPECTROGRAPH  
*Period Obligations*  
 12/17/1991-10/31/1993 FY93: \$169,190 TOTAL: \$395,190  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 B D SAVAGE GSFC/A SMITH 11-Astronomy

# **NASA'S UNIVERSITY PROGRAM** **WISCONSIN (Continued)**

**NAG 5-2169 University of Wisconsin - Madison 8537**  
 A STUDY OF UV INTERSTELLAR EXTINCTION ALONG SIGHT LINES  
 SAMPLES BY WUPPE

Period	Obligations	
12/31/1992-12/31/1993	FY93: \$6,000	TOTAL: \$6,000
Prin. Invest.	NASA Tech. Officer	CASE Category
C M ANDERSON	GSFC/D WEST	11-Astronomy

**NAG 5-2170 University of Wisconsin - Madison 8538**  
 RECENTLY DISCOVERED YOUNG PULSARS: CANDIDATE COOL ING  
 NEUTRON STARS AND A POSSIBLE 2.78 HOUR . . . .

Period	Obligations	
12/31/1992-12/31/1993	FY93: \$25,000	TOTAL: \$25,000
Prin. Invest.	NASA Tech. Officer	CASE Category
J P FINLEY	GSFC/D WEST	11-Astronomy

**NAG 5-2282 University of Wisconsin - Madison 8539**  
 EUV SPECTRAL LINE EMISSION FROM EARLY B STARS AND STUDY  
 OF EUV LINE EMISSION FROM BE STARS

Period	Obligations	
05/26/1993-06/14/1994	FY93: \$91,549	TOTAL: \$91,549
Prin. Invest.	NASA Tech. Officer	CASE Category
J P CASSINELLI	GSFC/D WEST	11-Astronomy

**NAG 8-153 University of Wisconsin - Madison 8540**  
 MICROMECHANICAL CHARACTERIZATION OF METAL NITRIDE FILMS  
 AT AMBIENT ELEVATED AND CRYOGENIC TEMPERATURE

Period	Obligations	
03/20/1990-12/25/1993	FY93: \$0	TOTAL: \$171,220
Prin. Invest.	NASA Tech. Officer	CASE Category
D S STONE	MSFC/R L THOM	47-Materials Engr
	....M A BAKER	

**NAG 8-771 University of Wisconsin - Madison 8541**  
 CONTAINERLESS PROCESSING OF UNDERCOOLED MELTS.

Period	Obligations	
03/01/1989-02/28/1993	FY93: \$0	TOTAL: \$479,692
Prin. Invest.	NASA Tech. Officer	CASE Category
J H PEREPEZKO	MSFC/M B ROBINSON	47-Materials Engr

**NAG 8-786 University of Wisconsin - Madison 8542**  
 DYNAMICAL INVESTIGATIONS OF THE MIDDLE ATMOSPHERE WITH  
 A 2-D MODEL

Period	Obligations	
07/17/1989-10/07/1992	FY93: \$0	TOTAL: \$130,999
Prin. Invest.	NASA Tech. Officer	CASE Category
M H HITCHMAN	MSFC/T L MILLER	31-Atmos Sci
G BRASSEUR	....F W LESLIE	

**NAG 8-828 University of Wisconsin - Madison 8543**  
 INTERACTIVE ACCESS AND MGMT FOR FOUR-DIMENSIONAL  
 ENVIRONMENTAL DATA SETS USING MCIDAS

Period	Obligations	
05/23/1990-03/31/1994	FY93: \$150,000	TOTAL: \$549,963
Prin. Invest.	NASA Tech. Officer	CASE Category
W L HIBBARD	MSFC/P J MEYER	31-Atmos Sci
G J TRIPOLI		

**NAG 8-892 University of Wisconsin - Madison 8544**  
 IMPLEMENTATION OF SYSTEM TO PRODUCE WINDS FROM  
 SATELLITES

Period	Obligations	
10/11/1991-10/27/1992	FY93: \$0	TOTAL: \$100,000
Prin. Invest.	NASA Tech. Officer	CASE Category
V SUOMI	MSFC/G JEDLOVEC	31-Atmos Sci

**NAG 8-927 University of Wisconsin - Madison 8545**  
 ATMOSPHERIC SOUDING

Period	Obligations	
07/28/1992-07/31/1993	FY93: \$0	TOTAL: \$65,000
Prin. Invest.	NASA Tech. Officer	CASE Category
G DRAK	MSFC/F R ROBERTSON	31-Atmos Sci

**NAG 8-974 University of Wisconsin - Madison 8546**  
 ART SUTOMATED SYSTEM FOR THE PRODUCTION OF CLOUD/  
 WATER VAPOR MOTION WINDS FROM GEOSTATIONARY STATEL

Period	Obligations	
06/16/1993-06/30/1993	FY93: \$100,000	TOTAL: \$100,000
Prin. Invest.	NASA Tech. Officer	CASE Category
V E SUOMI	MSFC/G J JEDLOVEC	32-Geological Sci

**NAG 9-568 University of Wisconsin - Madison 8547**  
 ASSESS METHODS TO OBATAIN A DIRECT MEASUREMENT OF  
 HELIUM 3 ON LUNAR SURFACE BY REMOTE CONTROL

Period	Obligations	
11/05/1991-04/01/1993	FY93: \$0	TOTAL: \$30,000
Prin. Invest.	NASA Tech. Officer	CASE Category
G L KULCINSKI	JSC/D MCKAY	13-Physics

**NAG 9-615 University of Wisconsin - Madison 8548**  
 LUNAR MISSION FOR VOLATILE GAS RECOVERY

Period	Obligations	
06/12/1992-10/01/1993	FY93: \$0	TOTAL: \$149,701
Prin. Invest.	NASA Tech. Officer	CASE Category
N A DUFFIE	JSC/D S MCKAY	59-Life Sci, NEC
G L KULCINSKI		

**NAGW 422 University of Wisconsin - Madison 8549**  
 STUDIES OF ULTRAVIOLET INTRINSIC POTARIZATION OF STARS

Period	Obligations	
03/01/1983-02/28/1993	FY93: \$0	TOTAL: \$362,891
Prin. Invest.	NASA Tech. Officer	CASE Category
V CASSINELLA	HQ/G C CLAYTON	11-Astronomy
	....E J WEILER	

**NAGW 695 University of Wisconsin - Madison 8550**  
 GROUND-BASED OBS OF COMET HALLEY/GIACOVINI-FINNER/JUP  
 10

Period	Obligations	
01/15/1985-01/14/1992	FY93: \$0	TOTAL: \$321,757
Prin. Invest.	NASA Tech. Officer	CASE Category
F SCHERB	HQ/H C BRINTON	11-Astronomy
	....J H RAHE	

**NAGW 975 University of Wisconsin - Madison 8551**  
 COMMERCIAL DEVELOPMENT OF SPACE

Period	Obligations	
09/01/1986-10/30/1993	FY93: \$1,470,000	TOTAL: \$8,914,000
Prin. Invest.	NASA Tech. Officer	CASE Category
J G BOLLINGER	HQ/V CEVENINI	51-Biological Sci
N DUFFIE	....A VILLAMIL	

**NASA'S UNIVERSITY PROGRAM**  
**WISCONSIN (Continued)**

**NAGW 1575 University of Wisconsin - Madison 8552**  
 PLANT ARCHITECTURE, GROWTH, AND RADIATIVE TRANSFER  
*Period* *Obligations*  
 01/23/1989-01/31/1992 FY93: \$0 TOTAL: \$524,140  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 J M NORMAN HQ/J K ALEXANDER 59-Life Sci, NEC  
 ....D A HOLLAND

**NAGW 1745 University of Wisconsin - Madison 8553**  
 STUDYING THE IMPACT OF COLD-GRONTAL PASSAGES  
*Period* *Obligations*  
 06/30/1989-09/30/1992 FY93: \$0 TOTAL: \$350,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 W P MENZEL HQ/J C DODGE 31-Atmos Sci  
 H H ROBERTS ....A TUYAHOV

**NAGW 1768 University of Wisconsin - Madison 8554**  
 THEORETICAL STUDIES OF INTERSTELLAR DUST  
*Period* *Obligations*  
 05/26/1989-05/31/1992 FY93: \$0 TOTAL: \$145,988  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 J S MATHIS HQ/G C CLAYTON 11-Astronomy

**NAGW 1773 University of Wisconsin - Madison 8555**  
 SEARCH FOR ICE SHEET ELEVATION CHANGES IN EAST ANTARCTICA  
*Period* *Obligations*  
 07/19/1989-04/30/1994 FY93: \$37,391 TOTAL: \$354,415  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 C R BENTLEY HQ/R H THOMAS 33-Oceanography  
 ....W S WILSON

**NAGW 1831 University of Wisconsin - Madison 8556**  
 COOPERATIVE INSTITUTE FOR METEOROLOGICAL SATELLITE STUDIES  
*Period* *Obligations*  
 03/22/1990-03/31/1993 FY93: \$85,413 TOTAL: \$830,826  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 W L SMITH HQ/S G TILFORD 31-Atmos Sci  
 F BRETHERTON ....G A LESANE

**NAGW 1855 University of Wisconsin - Madison 8557**  
 MICROWAVE ESTIMATES OF THE PRECIPITATION RATE TO IMPROVE  
*Period* *Obligations*  
 09/25/1989-01/31/1993 FY93: \$0 TOTAL: \$221,058  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 W H RAYMOND HQ/G ASRAR 39-Env Sci, NEC  
 ....R E MURPHY

**NAGW 1858 University of Wisconsin - Madison 8558**  
 AN INVESTIGATION OF CURRENT AND FUTURE SATELLITE AND IN SITU  
*Period* *Obligations*  
 10/04/1989-01/31/1994 FY93: \$0 TOTAL: \$396,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 G R DIAK HQ/R A SCHIFFER 31-Atmos Sci  
 ....J S THEON

**NAGW 2053 University of Wisconsin - Madison 8559**  
 NAGW-2053/UNIV OF WISCONSIN @ MADISON/TRACE GAS RETRIEVAL PROGRAM  
*Period* *Obligations*  
 05/01/1990-02/28/1993 FY93: \$0 TOTAL: \$507,273  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 W L SMITH HQ/J C DODGE 31-Atmos Sci  
 ....A J TUYAHOV

**NAGW 2099 University of Wisconsin - Madison 8560**  
 STATISTICAL ANALYSIS OF STRATOSPHERIC TEMPERATURE AND OZONE PROFILE DATA FOR TRENDS AND MODEL COMP.  
*Period* *Obligations*  
 05/07/1990-11/15/1993 FY93: \$15,000 TOTAL: \$147,000  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 G C REINSEL HQ/R D MCPETERS 31-Atmos Sci  
 ....M J PRATHER

**NAGW 2210 University of Wisconsin - Madison 8561**  
 EFFECTS AND DIAGNOSTICS OF SHOCKS IN HOT STAR WIND S  
*Period* *Obligations*  
 07/27/1990-12/31/1993 FY93: \$104,882 TOTAL: \$367,200  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 J J MACFARLANE HQ/G R RIEGLER 11-Astronomy

**NAGW 2411 University of Wisconsin - Madison 8562**  
 INVESTIGATION OF MOTIONS, MORPHOLOGY, STRUCTURE, A ND EVOLUTION OF NEPTUNE'S CLOUDS  
*Period* *Obligations*  
 08/02/1991-12/31/1993 FY93: \$113,886 TOTAL: \$342,618  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 L A SROMOVSKY HQ/W L QUAIDE 19-Phys Sci, NEC

**NAGW 2420 University of Wisconsin - Madison 8563**  
 DISK INSTABILITIES, BARS AND ACCRETION: FEEDING TH E MONSTER  
*Period* *Obligations*  
 04/19/1991-12/31/1993 FY93: \$66,753 TOTAL: \$191,719  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 L S SPARKE HQ/G S KUTTER 11-Astronomy  
 ....G R RIEGLER

**NAGW 2520 University of Wisconsin - Madison 8564**  
 THE PROPERTIES OF INT STELLAR DUST AND APPLICATION S TO ASTROPHYSICAL PROBLEMS  
*Period* *Obligations*  
 07/17/1991-05/31/1994 FY93: \$95,277 TOTAL: \$272,377  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 J A CARDELLI HQ/G S KUTTER 11-Astronomy  
 ....G R RIEGLER

**NAGW 2532 University of Wisconsin - Madison 8565**  
 NAGW-2532/UNIV WISCONSIN/NUMERICAL SIMULATIONS OF EXPLOSIVE EVENTS AND HOT GAS IN INTERSTELLAR MEDIA  
*Period* *Obligations*  
 05/23/1991-03/31/1994 FY93: \$100,001 TOTAL: \$297,494  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 D P COX HQ/G S KUTTER 11-Astronomy  
 ....G R RIEGLER

**NASA'S UNIVERSITY PROGRAM  
WISCONSIN (Continued)**

**NAGW 2536 University of Wisconsin - Madison 8566**  
THERMAL INFRARED REMOTE SENSING AND BIOSPHERIC PROCESSES

Period	Obligations	
07/10/1991-03/31/1994	FY93: \$66,407	TOTAL: \$188,823
Prin. Invest.	NASA Tech. Officer	CASE Category
J M NORMAN	HQ/G S ASRAR	39-Env Sci, NEC
	....D E WICKLAND	

**NAGW 2921 University of Wisconsin - Madison 8573**  
THEORETICAL MODELS AND ANALYSIS TOOLS FOR EUV, ULT RAVIOLET, AND OPTICAL OBSERVATIONS

Period	Obligations	
02/26/1992-12/31/1993	FY93: \$60,000	TOTAL: \$115,000
Prin. Invest.	NASA Tech. Officer	CASE Category
K BJORKMAN	HQ/R STACHNIK	11-Astronomy
	....E J WEILER	

**NAGW 2643 University of Wisconsin - Madison 8567**  
EXPERIMENTAL INVESTIGATION OF COOLING AND REHEATING OF NEUTRON STARS

Period	Obligations	
08/22/1991-04/30/1994	FY93: \$100,000	TOTAL: \$292,100
Prin. Invest.	NASA Tech. Officer	CASE Category
H B OGELMAN	HQ/G S KUTTER	11-Astronomy
	....G R RIEGLER	

**NAGW 2943 University of Wisconsin - Madison 8574**  
DYNAMICAL AND CHEMICAL STUDIES OF THE MIDDLE ATMOSPHERE USING SATELLITE DATA

Period	Obligations	
02/28/1992-12/31/1993	FY93: \$112,370	TOTAL: \$200,134
Prin. Invest.	NASA Tech. Officer	CASE Category
M H HITOHMAN	HQ/J A KAYE	31-Atmos Sci
	....R E MURPHY	

**NAGW 2751 University of Wisconsin - Madison 8568**  
INVESTIGATION OF BIOMASS BURNING IN THE AMAZON USING THE GEOSTATIONARY VISSR ATMOSPHERIC SOUNDER

Period	Obligations	
09/24/1991-05/31/1993	FY93: \$0	TOTAL: \$81,797
Prin. Invest.	NASA Tech. Officer	CASE Category
W P MENZEL	HQ/A C JANETOS	39-Env Sci, NEC
	....R T WATSON	

**NAGW 2961 University of Wisconsin - Madison 8575**  
SOME NEW MATHEMATICAL METHODS OF VARIATIONAL OBJECTIVE ANALYSIS

Period	Obligations	
10/09/1992-12/31/1993	FY93: \$90,000	TOTAL: \$155,000
Prin. Invest.	NASA Tech. Officer	CASE Category
G WAHBA	HQ/K H BERGNAN	31-Atmos Sci
	....R A SCHIFFER	

**NAGW 2820 University of Wisconsin - Madison 8569**  
POSSIBLE MEASUREMENTS OF CLOUD MOTIONS ON TITAN FROM VOYAGER IMAGES

Period	Obligations	
01/02/1992-05/31/1992	FY93: \$0	TOTAL: \$22,961
Prin. Invest.	NASA Tech. Officer	CASE Category
S LIMAYE	HQ/W L QUAIDE	11-Astronomy

**NAGW 2973 University of Wisconsin - Madison 8576**  
MULTI-SATELLITE ESTIMATES OF LAND-SURFACE PROPERTIES FOR DETERMINATION OF ENERGY AND WATER BUDGETS

Period	Obligations	
03/06/1992-12/31/1993	FY93: \$132,022	TOTAL: \$278,341
Prin. Invest.	NASA Tech. Officer	CASE Category
W P MENZEL	HQ/J C DODGE	39-Env Sci, NEC
	....R A SCHIFFER	

**NAGW 2835 University of Wisconsin - Madison 8570**  
NAGW-2835/UNIV WISCONSIN/GLASS FORMATION AND NUCLEATION IN MICROGRAVITY CONTAINERLESS-PROCESSED INVIS

Period	Obligations	
01/15/1992-11/30/1993	FY93: \$95,000	TOTAL: \$190,000
Prin. Invest.	NASA Tech. Officer	CASE Category
R F COOPER	HQ/B M CARPENTER	13-Physics
J H PEREPEZKO		

**NAGW 3004 University of Wisconsin - Madison 8577**  
GROWTH OF ORGANIC SINGLE CRYSTALS BY TWO MODIFIED FLOATING-ZONE PROCESSES

Period	Obligations	
03/11/1992-03/31/1993	FY93: \$0	TOTAL: \$45,000
Prin. Invest.	NASA Tech. Officer	CASE Category
S KOU	HQ/B M CARPENTER	49-Engr, NEC

**NAGW 2841 University of Wisconsin - Madison 8571**  
CONTAINERLESS PROCESSING FOR CONTROLLED SOLIDIFICATION MICROSTRUCTURES

Period	Obligations	
01/31/1992-11/30/1993	FY93: \$105,000	TOTAL: \$210,000
Prin. Invest.	NASA Tech. Officer	CASE Category
J H PEREPEZKO	HQ/B M CARPENTER	13-Physics

**NAGW 3038 University of Wisconsin - Madison 8578**  
THERMAL INFRARED REMOTE SENSING AND BIOSPHERIC PROCESSES

Period	Obligations	
04/03/1992-03/31/1993	FY93: \$0	TOTAL: \$62,385
Prin. Invest.	NASA Tech. Officer	CASE Category
J M NORMAN	HQ/G ASRAR	39-Env Sci, NEC
	....D E WICKLAND	

**NAGW 2908 University of Wisconsin - Madison 8572**  
THE MEASUREMENT OF VACUUM ULTRAVIOLET ATOMIC TRANSMISSION PROBABILITIES OF ASTROPHYSICAL INTEREST

Period	Obligations	
02/20/1992-12/31/1993	FY93: \$88,000	TOTAL: \$176,000
Prin. Invest.	NASA Tech. Officer	CASE Category
J E LAWLER	HQ/R STACHNIK	11-Astronomy
	....E J WEILER	

**NAGW 3286 University of Wisconsin - Madison 8579**  
NAGW-3286/UNIV WISCONSIN/PROTOTYPING THE BENCHMARK GOES PATHFINDER DATA SET PROCESSING

Period	Obligations	
11/27/1992-08/31/1993	FY93: \$820,000	TOTAL: \$820,000
Prin. Invest.	NASA Tech. Officer	CASE Category
F P BRETHERTON	HQ/M E MAIDEN	31-Atmos Sci
	....D M BUTLER	

# NASA'S UNIVERSITY PROGRAM

## WISCONSIN (Continued)

**NAGW 3318 University of Wisconsin - Madison 8580**  
 ASSESSING THE GEOMORPHIC EVOLUTION AND HYDROGRAPHIC  
 CHANGES INDUCED BY WINTER STORMS ALONG THE  
*Period Obligations*  
 02/02/1993-11/30/1993 FY93: \$141,258 TOTAL: \$141,258  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 W P MENZEL HQ/M BALTUCK 32-Geological Sci  
 O K HUH

**NAGW 3319 University of Wisconsin - Madison 8581**  
 HIGH SPECTRAL RESOLUTION OBSERVATIONS OF IO AND CO  
 METS  
*Period Obligations*  
 01/04/1993-10/31/1993 FY93: \$59,000 TOTAL: \$59,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 F SCHERH HQ/H C BRINTON 11-Astronomy

**NAGW 3641 University of Wisconsin - Madison 8582**  
 MECHANISMS OF MONSOON RAINFALL IN THE INDO-PACIFIC  
 REGION  
*Period Obligations*  
 06/04/1993-05/31/1994 FY93: \$109,522 TOTAL: \$109,522  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D MARTIN HQ/J C DODGE 31-Atmos Sci

**NAGW 3660 University of Wisconsin - Madison 8583**  
 A STUDY OF ANTIREFLECTIVE COATINGS TO ENHANCE THE UV  
 RESPONSE OF CCDs  
*Period Obligations*  
 06/11/1993-12/31/1993 FY93: \$19,860 TOTAL: \$19,860  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 C L JOSEPH HQ/R V STACHNIK 11-Astronomy  
 ....E J WEILER

**NAGW 3708 University of Wisconsin - Madison 8584**  
 LARGE EDDY SIMULATION OF CLEAR AIR CONVECTION OVER THE  
 FIRE SITE  
*Period Obligations*  
 08/10/1993-12/31/1993 FY93: \$50,000 TOTAL: \$50,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 E W ELORANTA HQ/D E WICKLAND 39-Env Sci, NEC  
 ....A C JANETOS

**NAGW 3732 University of Wisconsin - Madison 8585**  
 DEVELOPMENT OF TEACHING CURRICULA TO MODERNIZE INS  
 TRUCTION IN THE SCIENCES  
*Period Obligations*  
 09/03/1993-07/31/1994 FY93: \$34,775 TOTAL: \$34,775  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 W L SMITH HQ/D M BUTLER 39-Env Sci, NEC

**NAG10-64 University of Wisconsin - Madison 8586**  
 MICROGRAVITY EFFECTS DURING FERTILIZATION CELL DIV  
 DEVELOPMENT AND CALCIUM METABOLISM SEA URCHINS  
*Period Obligations*  
 08/01/1989-02/28/1994 FY93: \$107,705 TOTAL: \$505,618  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 H SCHATTE KSC/W KNOTT 54-Env Biology

**NAS 1-18272 University of Wisconsin - Madison 8587**  
 ERBE SCIENTIFIC INVESTIGATION  
*Period Obligations*  
 05/05/1986-01/04/1994 FY93: \$0 TOTAL: \$1,065,239  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 W L SMITH LARC/J E COOPER 31-Atmos Sci  
 ....B R BARKSTROM

**NAS 1-19958 University of Wisconsin - Madison 8588**  
 SAGE II SCIENTIFIC INVESTIGATIONS  
*Period Obligations*  
 05/14/1993-05/13/1996 FY93: \$30,000 TOTAL: \$30,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M H HITCHMAN LARC/G L MADDREA 31-Atmos Sci  
 ....M P MC CORMICK

**NAS 2-12939 University of Wisconsin - Madison 8589**  
 OPERATION AN MAINT. OF SQUIRREL MONKEY COLONY  
*Period Obligations*  
 06/01/1989-12/31/1993 FY93: \$95,786 TOTAL: \$971,987  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 L COE ARC/W L HOWER 51-Biological Sci  
 V REINHARDT ....J A FERANDIN  
 H CHRISPEN

**NAS 5-26078 University of Wisconsin - Madison 8590**  
 DEF PHASE EFFORT OF SPACELAB DIFFUSE SOFT X-RAY BRAGG  
 SPECTROMETER EXPERIMENT  
*Period Obligations*  
 03/10/1980-03/14/1994 FY93: \$720,000 TOTAL: \$10,447,237  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 W T DUNKER GSFC/S C DUNKER 11-Astronomy

**NAS 5-26777 University of Wisconsin - Madison 8591**  
 DEVELOPMENT OF ULTRAVIOLET PHOTO-POLARIMETER  
 EXPERIMENT  
*Period Obligations*  
 09/04/1981-09/30/1994 FY93: \$1,080,150 TOTAL: \$15,622,910  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A D CODE MSFC/R R JOYROE 11-Astronomy  
 K NORDSIECK

**NAS 5-30131 University of Wisconsin - Madison 8592**  
 SPACE TELESCOPE IMAGINE SPECTROGRAPH SUPPORT  
*Period Obligations*  
 09/22/1987-09/30/1993 FY93: \$95,000 TOTAL: \$143,954  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 F ROESLER GSFC/H D VITAGLIANO 11-Astronomy

**NAS 5-30752 University of Wisconsin - Madison 8593**  
 INVESTIGATION OF THE LASER ATMOSPHERE WIND SOUNDER  
*Period Obligations*  
 01/29/1990-12/31/1993 FY93: \$25,000 TOTAL: \$215,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J ANDERSON GSFC/R ATLAS 31-Atmos Sci

**NAS 5-31347 University of Wisconsin - Madison 8594**  
 NRA-89-OSSA-21/APPLIED INFORMATION SYSTEMS RSCH  
*Period Obligations*  
 06/25/1991-06/24/1992 FY93: \$0 TOTAL: \$140,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S LIMAYE GSFC/J BREDEKAMP 22-Computer Science  
 ....H BURRITT



**NASA'S UNIVERSITY PROGRAM**  
**WISCONSIN (Continued)**

**NAS 5-31367 University of Wisconsin - Madison 8595**  
 EOS STUDY  
*Period Obligations*  
 12/30/1991-12/14/2001 FY93: \$202,000 TOTAL: \$342,195  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 P MENZEL GSFC/H OSEROFF 31-Atmos Sci

**NAS 5-31375 University of Wisconsin - Madison 8596**  
 EOS AIRS INVESTIGATION  
*Period Obligations*  
 01/13/1992-12/14/2001 FY93: \$118,000 TOTAL: \$280,915  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 H REVERCOMB GSFC/E KREINS 31-Atmos Sci

**NAS 5-31377 University of Wisconsin - Madison 8597**  
 EOS INVESTIGATION: ALGORITHM DEVELOPMENT WITH HIS/ AIRS  
*Period Obligations*  
 01/08/1992-12/14/2001 FY93: \$136,000 TOTAL: \$258,640  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 W L SMITH GSFC/E KREINS 39-Env Sci, NEC

**NAS 5-33015 University of Wisconsin - Madison 8598**  
 GLRS SCIENCE TEAM MEMBER STUDY  
*Period Obligations*  
 11/01/1989-12/14/1993 FY93: \$0 TOTAL: \$82,979  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 C BENTLEY GSFC/G SOFFEN 39-Env Sci, NEC

**NAS 8-38499 University of Wisconsin - Madison 8599**  
 STUDY OF GEOPLATFOM PROGRAM  
*Period Obligations*  
 01/01/1990-12/31/1993 FY93: \$179,244 TOTAL: \$1,251,355  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 W L SMITH MSFC/M GOODMAN 32-Geological Sci  
 L P BRETHERTON ....C LAPENTA  
 W P MENZEL

**NAS 8-38664 University of Wisconsin - Madison 8600**  
 INVESTIGATION X-RAY BACKGROUND SURVEY SPECTROMETER  
*Period Obligations*  
 06/13/1990-12/31/1993 FY93: \$0 TOTAL: \$99,787  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 W T SANDERS MSFC/R R JAYRO 11-Astronomy

**NCC 2-301 University of Wisconsin - Madison 8601**  
 GROWTH OF POTATOES FOR CELSS  
*Period Obligations*  
 11/01/1987-11/30/1992 FY93: \$0 TOTAL: \$1,130,218  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 T W TIBBITTS ARC/R D MACELROY 51-Biological Sci  
 J VON ELBE  
 J P PALTA

**NCC 2-542 University of Wisconsin - Madison 8602**  
 PSYCHOPHYSICAL EVALUATION OF THREE-DIMENSIONAL  
 AUDITORY DISPLAYS  
*Period Obligations*  
 05/01/1988-04/30/1994 FY93: \$147,999 TOTAL: \$735,865  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 F L WIGHTMAN ARC/E M WENZEL 69-Psych, NEC

**NCC 2-619 University of Wisconsin - Madison 8603**  
 PRELIMINARY PILOT DATA FOR SLS-1 EXPERIMENTAL PRO TOCOL  
 BIOCHEMICAL MORPHOLOGICAL AND BIOMECHANICAL  
*Period Obligations*  
 07/19/1989-12/31/1993 FY93: \$40,000 TOTAL: \$169,425  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 A C VAILAS ARC/E M HOLTON 51-Biological Sci

**NCC 2-679 University of Wisconsin - Madison 8604**  
 POST-LAUNCHSCIENTIFIC AND TECHNICAL SUPPORT FOR THE  
 GALILEO NET FLUX RADIOMETER EXPERIMENT  
*Period Obligations*  
 07/02/1990-12/31/1992 FY93: \$0 TOTAL: \$315,097  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 L A SROMOVSKY ARC/B CHIN 31-Atmos Sci  
 ....R E YOUNG

**NCC 2-780 University of Wisconsin - Madison 8605**  
 CAD SYSTEM FOR LIQUID CRYSTAL DISPLAY  
*Period Obligations*  
 02/16/1993-11/30/1993 FY93: \$88,500 TOTAL: \$88,500  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 B E SALEH ARC/J O LARIMER 45-Elec Engr

**NCC 3-261 University of Wisconsin - Madison 8606**  
 HIGH TEMPERATURE COAXIAL TRANSFORMER  
*Period Obligations*  
 06/23/1992-12/31/1992 FY93: \$0 TOTAL: \$20,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 D M DIVAN LERC/E D BAUMANN 45-Elec Engr  
 D W NOVOTNY ....I T MYERS

**NCC 8-12 University of Wisconsin - Madison 8607**  
 GY.'  
*Period Obligations*  
 03/25/1988-06/30/1992 FY93: \$0 TOTAL: \$217,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 G DIAK MSFC/F ROBERTSON 31-Atmos Sci

**NGT 00-030-034 University of Wisconsin - Madison 8608**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
 10/19/1990-08/31/1993 FY93: \$0 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 T M LILLESAND HQ/G ASRAR 39-Env Sci, NEC

**NGT 00-030-113 University of Wisconsin - Madison 8609**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
 11/02/1992-08/31/1994 FY93: \$44,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R G WAGNER HQ/G ASRAR 99-Multi-Discip  
 ....D M BUTLER

**NGT 00-050-426 University of Wisconsin - Madison 8610**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 07/26/1989-08/31/1992 FY93: \$0 TOTAL: \$61,080  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 B D SAVAGE HQ/F C OWENS 13-Physics

# **NASA'S UNIVERSITY PROGRAM WISCONSIN (Continued)**

**NGT 00-050-666 University of Wisconsin - Madison 8611**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 10/01/1990-08/31/1993 FY93: \$0 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 K H NORDSIECK HQ/J K ALEXANDER 11-Astronomy

**NAG 3-1381 University of Wisconsin - Milwaukee 8619**  
 REWETTING OF MONOGROOVE HEAT PIPE IN SPACE STATION  
 RADIATORS  
*Period Obligations*  
 12/23/1992-12/14/1993 FY93: \$90,945 TOTAL: \$90,945  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S H CHAN LERC/J A PLATT 46-Mech Engr

**NGT 00-050-956 University of Wisconsin - Madison 8612**  
 NASA GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 07/24/1992-06/30/1994 FY93: \$22,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 T TIBBITTS HQ/J K ALEXANDER 55-Agriculture Sci

**NAG 9-525 University of Wisconsin - Milwaukee 8620**  
 PHYSICS OF HAT PIPE REWETTING  
*Period Obligations*  
 05/24/1991-02/01/1994 FY93: \$0 TOTAL: \$25,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 S H CHAN JSC/E K UNGAR 46-Mech Engr

**NGT 00-051-003 University of Wisconsin - Madison 8613**  
 NGT-51003/UNIV WISCONSIN @ MADISON/GRADUATE STUDENT  
 RESEARCHERS PROGRAM  
*Period Obligations*  
 08/11/1992-08/31/1994 FY93: \$22,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 B D SAVAGE HQ/J K ALEXANDER 11-Astronomy

**NAG 9-556 University of Wisconsin - Milwaukee 8621**  
 FLUENCE OF ISOTOPE ENRICHMENT IN SHUTTLE WATER  
*Period Obligations*  
 09/25/1991-08/31/1992 FY93: \$188 TOTAL: \$18,812  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 L O SCHULZ JSC/S H GOLDSTEIN 51-Biological Sci

**NGT 00-051-067 University of Wisconsin - Madison 8614**  
 GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 05/28/1993-06/30/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 R F COOPER HQ/D A HOLLAND 47-Materials Engr

**NAG 9-651 University of Wisconsin - Milwaukee 8622**  
 NEUROENDOCRINE ORGANOID ASSEMBLY IN VITRO  
*Period Obligations*  
 10/28/1992-12/01/1993 FY93: \$150,000 TOTAL: \$150,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 P I LELKES JSC/G SPAULDING 51-Biological Sci

**NGT 00-051-132 University of Wisconsin - Madison 8615**  
 GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 07/28/1993-08/31/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 E CHURCHWELL HQ/D HOLLAND 11-Astronomy

**NAGW 3270 University of Wisconsin - Milwaukee 8623**  
 NAGW-3270/UNIV WISCONSIN MILWAUKEE/EVOLUTIONARY R  
 ELATIONSHIPS OF S PUTREFACIENS METAL REDUCTASES  
*Period Obligations*  
 12/04/1992-10/31/1993 FY93: \$186,937 TOTAL: \$186,937  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 K NEALSON HQ/J D RUMMEL 51-Biological Sci

**NGT 00-051-133 University of Wisconsin - Madison 8616**  
 GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 07/28/1993-08/31/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 J PEREPEZKO HQ/D A HOLLAND 47-Materials Engr

**NGT 00-030-003 University of Wisconsin - Milwaukee 8624**  
 NASA GLOBAL CHANGE GRADUATE FELLOWSHIP PROGRAM  
*Period Obligations*  
 10/02/1990-12/31/1993 FY93: \$0 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 K H NEALSON HQ/G ASRAR 39-Env Sci, NEC

**NGT 00-051-177 University of Wisconsin - Madison 8617**  
 GRADUATE STUDENT RESEARCHERS PROGRAM  
*Period Obligations*  
 08/18/1993-08/22/1994 FY93: \$22,000 TOTAL: \$22,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 H YUTTEN JSC/S GOLDSTEIN 22-Computer Science

**NAG 3-1274 University of Wisconsin - Milwaukee 8618**  
 CHEMICAL VAPOR DEPOSITION OF HIGH TC SUPERCONDUCTING  
 FILMS IN A MICROGRAVITY ENVIRONMENT  
*Period Obligations*  
 05/09/1991-06/14/1994 FY93: \$0 TOTAL: \$200,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 M LEVY LERC/T K GLASGOW 13-Physics  
 B K SARMA  
 W S MILLMAN

**NGT 00-040-035 University of Wisconsin - Milwaukee 8625**  
 NATIONAL SPACE GRANT COLLEGE AND FELLOWSHIP PROGRAM  
*Period Obligations*  
 04/30/1991-02/28/1994 FY93: \$207,000 TOTAL: \$562,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
 G T MOORE HQ/E T SCHWARTZ 99-Multi-Discip

**NASA'S UNIVERSITY PROGRAM  
WYOMING**

**WYOMING**

**NAG 1-1294 University of Wyoming 8626**  
MECHANICAL PROPERTIES EVALUATIONS OF NEW THERMOPLASTIC AND THERMOSET POLYMER MATRICES AND COMPOSITE

Period	Obligations	
07/11/1991-12/31/1993	FY93: \$35,001	TOTAL: \$90,074
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
D F ADAMS	LARC/N J JOHNSTON	47-Materials Engr
	....P M HERGENROTHER	

**NAG 2-134 University of Wyoming 8627**  
THE STUDY OF STAR FORMATION AND MOLECULAR CLOUD EVOLUTION USING THE KUIPER

Period	Obligations	
10/01/1987-09/30/1993	FY93: \$20,000	TOTAL: \$413,846
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
H A THRONSON JR	ARC/C D LAUGHLIN	11-Astronomy
	....H A HENDRIKS	

**NAG 2-755 University of Wyoming 8628**  
INFRARED SPECTROSCOPY OF TRANSIENT NOVAE ERUPTIONS : OBJECTS OF OPPORTUNITY

Period	Obligations	
01/28/1992-11/30/1993	FY93: \$0	TOTAL: \$30,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
C E WOODWARD	ARC/C D LAUGHLIN	11-Astronomy
R D GEHRZ	....C M GILLESPIE	

**NAG 5-913 University of Wyoming 8629**  
AN AERBORNE STUDY OF MICROWAVE SURFACE SENSING AND BOUNDARY LAYER HEAT AND MOISTURE FOR FIFE

Period	Obligations	
06/01/1987-01/31/1992	FY93: \$0	TOTAL: \$336,316
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
R D KELLY	GSFC/M OWE	39-Env Sci, NEC
R K MOORE	....F HALL	

**NAG 5-1860 University of Wyoming 8630**  
THE POINT SOURCE POPULATION OF LOW-METALLICITY GALAXIES AND THE FATE OF THE ISM IN GALAXIES . . . .

Period	Obligations	
01/14/1992-01/31/1993	FY93: \$0	TOTAL: \$51,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
H A THRONSON	GSFC/R PETRE	11-Astronomy

**NAG 5-2240 University of Wyoming 8631**  
AIRBORNE INVESTIGATION OF BIOSPHERE-ATMOSPHERE INTERACTIONS OVER THE BOREAL FOREST

Period	Obligations	
04/08/1993-04/14/1994	FY93: \$69,600	TOTAL: \$69,600
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
R D KELLY	GSFC/F G HALL	39-Env Sci, NEC
	....P SELLERS	

**NAG 8-249 University of Wyoming 8632**  
DATA AND SIGNAL PROCESSING FOR THE LASER ATMOSPHERIC WIND SOUNDER

Period	Obligations	
08/24/1992-08/23/1993	FY93: \$35,000	TOTAL: \$35,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
R INGUVA	MSFC/M J KAVAYA	13-Physics
	....J ROTHERMEL	

**NAG 8-899 University of Wyoming 8633**  
OPTIMIZATION OF RADIATIVELY COOLED INFRARED SPACE TELESCOPES

Period	Obligations	
11/25/1991-11/24/1993	FY93: \$0	TOTAL: \$60,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
H A THRONSON	MSFC/M E NEIN	11-Astronomy
T G HAWARDEN		

**NAG 9-634 University of Wyoming 8634**  
INCREASE AUTONOMY OF EVA RETRIEVER VISION SYSTEM

Period	Obligations	
08/24/1992-08/31/1993	FY93: \$0	TOTAL: \$14,993
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
M MAGEE	JSC/S H GOLDSTEIN	22-Computer Science

**NAGW 1276 University of Wyoming 8635**  
INFRARED SPECKLE INTERFEROMETRY

Period	Obligations	
04/15/1988-11/30/1993	FY93: \$39,965	TOTAL: \$182,803
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
R R HOWELL	HQ/H C BRINTON	11-Astronomy
	....J H RAHE	

**NAGW 1850 University of Wyoming 8636**  
MULTISPECTRAL ANALYSIS OF SEDIMENTARY BASINS

Period	Obligations	
10/11/1989-07/31/1992	FY93: \$0	TOTAL: \$32,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
R MARRS	HQ/M BALTUCK	32-Geological Sci
	....T J PIEPER	

**NAGW 2222 University of Wyoming 8637**  
SURFACE-ATMOSPHERE INTERACTIONS IN THE DEVELOPMENT OF THE MARTIAN POLAR LANDSCAPE

Period	Obligations	
02/22/1991-10/31/1993	FY93: \$23,887	TOTAL: \$71,643
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
T R PARISH	HQ/T A MAXWELL	32-Geological Sci

**NAGW 2666 University of Wyoming 8638**  
NAGW-2666/UNIV WYOMING/GENERAL CIRCULATION MODEL SIMULATIONS FOR ANTARCTICA

Period	Obligations	
09/24/1991-05/31/1994	FY93: \$41,775	TOTAL: \$131,412
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
T R PARISH	HQ/R H THOMAS	39-Env Sci, NEC
	....R A SCHIFFER	

**NAGW 2808 University of Wyoming 8639**  
DIRECT COUPLING OF ATMOSPHERIC WARMING TO PLANT ECOLOGY NOCTURNAL RADIATION EXCHANGE, FROST OCCURRE

Period	Obligations	
01/06/1992-01/31/1994	FY93: \$90,000	TOTAL: \$181,675
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
W K SMITH	HQ/J K ALEXANDER	54-Env Biology
	....D A HOLLAND	

**NAGW 3074 University of Wyoming 8640**  
THE THIRD TETON SUMMER SCHOOL:

Period	Obligations	
05/07/1992-12/31/1992	FY93: \$0	TOTAL: \$12,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
H A THRONSON	HQ/L J CAROFF	11-Astronomy

# **NASA'S UNIVERSITY PROGRAM WYOMING (Continued)**

**NAS 1-18945 University of Wyoming 8641**  
SAGE III SCIENCE INVESTIGATION SUPPORT P.I. - DR. GABOR VALI  
*Period Obligations*  
01/17/1990-01/31/1995 FY93: \$20,000 TOTAL: \$69,750  
*Prin. Invest. NASA Tech. Officer CASE Category*  
G VALI LARC/G L MADDREA 31-Atmos Sci  
....L R MCMASTER

**NAG 5-2188 University of Puerto Rico - Mayaguez 8648**  
SOFT X-RAY OPTICS BY PULSED LASER DEPOSITION  
*Period Obligations*  
02/04/1993-02/14/1994 FY93: \$57,421 TOTAL: \$57,421  
*Prin. Invest. NASA Tech. Officer CASE Category*  
F E FERNANDEZ GSFC/R A KESKI-KUHA 13-Physics

**NGT 00-040-050 University of Wyoming 8642**  
NATIONAL SPACE GRANT COLLEGE AND FELLOWSHIP PROGRA M  
*Period Obligations*  
07/24/1991-03/31/1994 FY93: \$173,000 TOTAL: \$348,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
P E JOHNSON HQ/E T SCHWARTZ 99-Multi-Discip

**NAG 8-193 University of Puerto Rico - Mayaguez 8649**  
JOINT VENTURE  
*Period Obligations*  
05/17/1991-07/01/1993 FY93: \$4,750 TOTAL: \$103,580  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J MACARI MSFC/F SIX 11-Astronomy  
A BARRIENTOS

## **PUERTO RICO**

**NAG13-19 Univ of Puerto Rico-Med Sciences 8643**  
RELATIONSHIP BETWEEN LAND USE AND HEALTH ASSOCIATE  
WATER QUALITY PARAMETERS IN RIVERS IN LUQUILLO FO  
*Period Obligations*  
01/17/1992-12/31/1993 FY93: \$52,472 TOTAL: \$102,450  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J NORAT SSC/A T JOYCE 54-Env Biology  
F D FOLCH

**NAGW 2912 University of Puerto Rico - Mayaguez 8650**  
REMOTE SENSING OF CHLOROPHYLL AND SEDIMENTS IN COA  
STAL WATERS OF PUERTO RICO  
*Period Obligations*  
02/20/1992-12/31/1992 FY93: \$0 TOTAL: \$225,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J M DIAZ HQ/J C DODGE 33-Oceanography  
....A J TUYAHOV

**NAG 8-260 University of Puerto Rico 8644**  
JOVE  
*Period Obligations*  
12/30/1992-05/31/1994 FY93: \$59,000 TOTAL: \$59,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
A F ANDINO MSFC/F SIX 51-Biological Sci  
E SOBRINO

**NAG13-17 University of Puerto Rico - Mayaguez 8651**  
USE OF A GIS AND REMOTE SENSING TECHNOLOGY  
*Period Obligations*  
12/13/1991-12/31/1992 FY93: \$81,515 TOTAL: \$131,914  
*Prin. Invest. NASA Tech. Officer CASE Category*  
L L RODRIGUEZ SSC/A T JOYCE 39-Env Sci, NEC

**NAG13-18 University of Puerto Rico 8645**  
PRIMARY PRODUCTIVITY AND REMOTE SENSING OF TROPICAL  
VEGETATION  
*Period Obligations*  
12/26/1991-11/30/1993 FY93: \$53,013 TOTAL: \$103,073  
*Prin. Invest. NASA Tech. Officer CASE Category*  
N FLETCHER SSC/A T JOYCE 39-Env Sci, NEC

**NGT 00-040-053 University of Puerto Rico - Mayaguez 8652**  
NGT-40053/UNIV PUERTO RICO/NATIONAL SPACE GRANT  
FELLOWSHIP PROGRAM  
*Period Obligations*  
04/27/1992-01/31/1993 FY93: \$150,000 TOTAL: \$300,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J G GONZALES HQ/E T SCHWARTZ 99-Multi-Discip

**NGT 00-070-239 University of Puerto Rico 8646**  
NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
MINORITY FOCUS PROGRAM  
*Period Obligations*  
12/11/1991-12/31/1993 FY93: \$22,000 TOTAL: \$44,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
A D CRUZ SSC/A JOYCE 39-Env Sci, NEC

**NGT 00-070-099 University of Puerto Rico - Mayaguez 8653**  
NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
MINORITY FOCUS PROGRAM  
*Period Obligations*  
10/17/1988-01/14/1992 FY93: \$0 TOTAL: \$58,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J M LOPEZ HQ/F C OWENS 33-Oceanography

**NAG 1-1496 University of Puerto Rico - Mayaguez 8647**  
TECHNIQUES FOR THE ANALYSIS OF SYSTEMS WITH DAMPING  
MATERIALS BY THE FRACTIONAL DERIVATIVE  
*Period Obligations*  
04/19/1993-05/31/1994 FY93: \$74,998 TOTAL: \$74,998  
*Prin. Invest. NASA Tech. Officer CASE Category*  
L SUAREZ LARC/L G HORTA 46-Mech Engr

**NGT 00-070-195 University of Puerto Rico - Mayaguez 8654**  
NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
MINORITY FOCUS PROGRAM  
*Period Obligations*  
08/13/1990-07/31/1993 FY93: \$0 TOTAL: \$66,000  
*Prin. Invest. NASA Tech. Officer CASE Category*  
J M LOPEZ HQ/F C OWENS 33-Oceanography

**NASA'S UNIVERSITY PROGRAM**  
**PUERTO RICO (Continued)**

**NGT 00-070-208 University of Puerto Rico - Mayaguez 8655**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
 MINORITY FOCUS PROGRAM

<i>Period</i>	<i>Obligations</i>	
04/19/1991-12/31/1993	FY93: \$14,000	TOTAL: \$58,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
R E VASQUEZ	HQ/D K RUSSELL	45-Elec Engr

**NGT 00-070-209 University of Puerto Rico - Mayaguez 8656**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
 MINORITY FOCUS PROGRAM

<i>Period</i>	<i>Obligations</i>	
08/16/1991-07/31/1994	FY93: \$22,000	TOTAL: \$66,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
J M LOPEZ	HQ/F C OWENS	33-Oceanography

**NGT 00-070-238 University of Puerto Rico - Mayaguez 8657**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
 MINORITY FOCUS PROGRAM

<i>Period</i>	<i>Obligations</i>	
08/16/1991-07/31/1994	FY93: \$22,000	TOTAL: \$66,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
J M LOPEZ	HQ/J T LYNCH	33-Oceanography

**NGT 00-070-259 University of Puerto Rico - Mayaguez 8658**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
 MINORITY FOCUS PROGRAM

<i>Period</i>	<i>Obligations</i>	
05/04/1992-06/30/1994	FY93: \$22,000	TOTAL: \$44,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
J M LOPEZ	SSC/A JOYCE	33-Oceanography

**NGT 00-070-267 University of Puerto Rico - Mayaguez 8659**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
 MINORITY FOCUS PROGRAM

<i>Period</i>	<i>Obligations</i>	
05/07/1992-06/30/1993	FY93: \$0	TOTAL: \$22,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
R VASQUEZ	SSC/A JOYCH	45-Elec Engr

**NGT 00-070-311 University of Puerto Rico - Mayaguez 8660**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
 MINORITY FOCUS PROGRAM

<i>Period</i>	<i>Obligations</i>	
05/28/1993-05/31/1994	FY93: \$22,000	TOTAL: \$22,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
R VASQUEZ	HQ/D K RUSSELL	33-Oceanography

**NGT 00-070-319 University of Puerto Rico - Mayaguez 8661**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
 MINORITY FOCUS PROGRAM

<i>Period</i>	<i>Obligations</i>	
06/29/1993-07/31/1994	FY93: \$22,000	TOTAL: \$22,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
J M LOPEZ	HQ/D K RUSSELL	33-Oceanography

**NGT 00-070-320 University of Puerto Rico - Mayaguez 8662**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
 MINORITY FOCUS PROGRAM

<i>Period</i>	<i>Obligations</i>	
06/29/1993-07/31/1994	FY93: \$22,000	TOTAL: \$22,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
J M LOPEZ	HQ/D K RUSSELL	33-Oceanography

**NGT 00-070-322 University of Puerto Rico - Mayaguez 8663**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
 MINORITY FOCUS PROGRAM

<i>Period</i>	<i>Obligations</i>	
06/29/1993-08/14/1994	FY93: \$22,000	TOTAL: \$22,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
A LEYDERMAN	HQ/D K RUSSELL	13-Physics

**NGT 00-070-323 University of Puerto Rico - Mayaguez 8664**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
 MINORITY FOCUS PROGRAM

<i>Period</i>	<i>Obligations</i>	
07/05/1993-07/31/1994	FY93: \$22,000	TOTAL: \$22,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
J M LOPEZ	HQ/D K RUSSELL	33-Oceanography

**NGT 00-070-362 University of Puerto Rico - Mayaguez 8665**  
 NASA GRADUATE STUDENT RESEARCHERS UNDERREPRESENTED  
 MINORITY FOCUS PROGRAM

<i>Period</i>	<i>Obligations</i>	
08/12/1993-06/30/1994	FY93: \$22,000	TOTAL: \$22,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
R VASQUEZ	HQ/D K RUSSELL	45-Elec Engr

**NAG 1-1347 University of Turabo 8666**  
 PRE-ENGINEERING PREPARATORY PROGRAM

<i>Period</i>	<i>Obligations</i>	
09/24/1991-09/30/1992	FY93: \$0	TOTAL: \$110,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
W R DAWES	LARC/R L YANG	49-Engr, NEC

**NGT 00-090-157 University of Turabo 8667**  
 PRE ENGINEERING PREPARATORY PROGRAM

<i>Period</i>	<i>Obligations</i>	
04/02/1993-09/30/1994	FY93: \$220,000	TOTAL: \$220,000
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
U C DAWES	LARC/R YANG	99-Multi-Discip
	..../B WHITE	

**AUSTRALIA**

**NAGW 674 University of Queensland 8668**  
 SHOCK TUNNEL STUDIES OF SCRAMJET PHENOMANENA

<i>Period</i>	<i>Obligations</i>	
01/01/1985-12/31/1992	FY93: \$78,728	TOTAL: \$2,095,457
<i>Prin. Invest.</i>	<i>NASA Tech. Officer</i>	<i>CASE Category</i>
R J STALKER	LARC/G Y ANDERSON	41-Aero Engr
R G MORGAN	..../J SUDDRETH	
A PAUL		

# **NASA'S UNIVERSITY PROGRAM** **AUSTRALIA (Continued)**

**NAGW 2495**                      **University of Queensland**                      **8669**  
NAGW-2495/UNIV QUEENSLAND/RADIATION DEGRADATION OF  
POLYMERIC MATERIALS IN SPACE ENVIRONMENTS  
*Period*                                      *Obligations*  
06/21/1991-04/30/1993                      FY93: \$40,000                      TOTAL: \$139,350  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
J H O'DONNELL                      LARC/P R YOUNG                      12-Chemistry  
D J HILL                      ....W S SLEMP  
G A GEORGE

## **GREAT BRITAIN**

**NAGW 3198**                      **University of Leeds**                      **8675**  
NAGW-3198/UNIV LEEDS/GENERIC DESIGN OF A DOUBLE DELTA  
WING USING THE PDE METHOD  
*Period*                                      *Obligations*  
08/28/1992-09/30/1993                      FY93: \$0                      TOTAL: \$29,850  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
M I BLOOR                      LARC/R E SMITH                      41-Aero Engr  
M J WILSON                      ....J J LAMBIOTTE

## **CANADA**

**NAGW 1466**                      **Mcgill University**                      **8670**  
STUDY OF EFFECT OF CLOUD INHOMOGENEITY  
*Period*                                      *Obligations*  
11/16/1988-11/30/1992                      FY93: \$1                      TOTAL: \$176,001  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
R DAVIES                      LARC/R J KEYNTON                      31-Atmos Sci  
...../B R BARKSTROM

**NAGW 2127**                      **University of Wales**                      **8676**  
A MORE EFFICIENT FINITE ELEMENT ALGORITHM FOR HIGH SPEED  
COMPRESSIBLE FLOW  
*Period*                                      *Obligations*  
06/15/1990-04/30/1993                      FY93: \$85,000                      TOTAL: \$254,400  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
O C ZIENKIEWICZ                      ARC/K K GUPTA                      41-Aero Engr  
...../K L PETERSEN

**NAGW 2799**                      **University of Toronto**                      **8671**  
SMALL BODIES IN THE SOLAR SYSTEM  
*Period*                                      *Obligations*  
12/13/1991-08/31/1992                      FY93: \$0                      TOTAL: \$33,600  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
S TREMAINE                      ARC/J N CUZZI                      11-Astronomy  
L DONES

**NAGW 2962**                      **University of Wales**                      **8677**  
UNSTRUCTURED GRID METHODS FOR SIMULATION OF 3D TRA  
NSIENT  
*Period*                                      *Obligations*  
03/03/1992-12/31/1993                      FY93: \$0                      TOTAL: \$73,279  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
K MORGAN                      ARC/K K GUPTA                      41-Aero Engr  
O C ZIENKIEWICZ                      ..../K L PETERSEN

**NAGW 3112**                      **University of Waterloo**                      **8672**  
NAGW-3112/UNIV WATERLOO/A NEW LAGRANGIAN METHOD FO R  
HYPERSONIC FLOW COMPUTATION WITH APPLICATIONS  
*Period*                                      *Obligations*  
06/22/1992-12/31/1992                      FY93: \$59,950                      TOTAL: \$59,950  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
W H HUI                      LERC/M S LIOU                      41-Aero Engr

**NAGW 3290**                      **University of Wales**                      **8678**  
NAGW-3290/UNIV OF WALES/FINITE ELMEENT METHODS FOR THE  
SIMULATION OF HYPERSONIC FLOWS  
*Period*                                      *Obligations*  
01/22/1993-10/31/1993                      FY93: \$192,332                      TOTAL: \$192,332  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
K MORGAN                      LARC/K S BEY                      41-Aero Engr  
J PERAIRE                      ....A R WIETING

**NAS 5-30294**                      **York University**                      **8673**  
HUBBLE SPACE TELESCOPE GUARANTEED TIME OBSERVATION  
PROGRAM SUPPORT  
*Period*                                      *Obligations*  
01/20/1988-12/31/1996                      FY93: \$129,000                      TOTAL: \$616,688  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
J J CALDWELL                      GSFC/J K KALINOWSKI                      42-Astro Engr

**NCCW 2**                      **University of Wales**                      **8679**  
PANELS WITH SHEAR LOADING  
*Period*                                      *Obligations*  
10/01/1981-03/31/1994                      FY93: \$50,000                      TOTAL: \$234,250  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
F W WILLIAMS                      LARC/J H STARNES                      46-Mech Engr  
...../M S ANDERSON

## **CHILE**

**NAS 5-1925**                      **University of Chile**                      **8674**  
MANDO OF MINITRACK FACILITIES IN CLILE  
*Period*                                      *Obligations*  
09/21/1962-10/30/1993                      FY93: \$1,405,500                      TOTAL: \$88,747,268  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
E DIAZ                      GSFC/W J BODIN                      99-Multi-Discip  
...../D SPINTMAN

## **ISRAEL**

**NAGW 1128**                      **Israel Institute of Technology**                      **8680**  
AUGMENTATION AND TRAINING OF PILOT PERCEPTUAL  
*Period*                                      *Obligations*  
09/09/1987-09/30/1993                      FY93: \$51,700                      TOTAL: \$358,388  
*Prin. Invest.*                      *NASA Tech. Officer*                      *CASE Category*  
D GOPHER                      HQ/S G HART                      69-Psych, NEC  
S MERHAV  
R KIMCHI

# NASA'S UNIVERSITY PROGRAM

## ISRAEL (Continued)

**NAGW 1708** **Israel Institute of Technology** **8681**  
 MULTI-DISCIPLINARY OPTIMIZATION OF AEROSERVOELASTIC  
 SYSTEMS  
*Period* *Obligations*  
 06/01/1989-09/30/1992 FY93: \$1 TOTAL: \$91,802  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 M KARPEL LARC/C D WIESEMAN 41-Aero Engr

**NASW 4685** **University of Karlsruhe** **8687**  
 THERMOELECTRIC INFRARED DETECTORS  
*Period* *Obligations*  
 11/06/1992-11/14/1993 FY93: \$151,972 TOTAL: \$151,972  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 V KUNDE HQ/H WRIGHT 41-Aero Engr

**NAGW 3201** **Israel Institute of Technology** **8682**  
 IMPROVEMENT OF METHOD FOR EXPERIMENTAL DETERMINATI ON  
 FOR FLUTTER SPEED BY PARAMETER IDENTIFICATION  
*Period* *Obligations*  
 09/04/1992-10/31/1993 FY93: \$0 TOTAL: \$34,153  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 E NISSIM ARC/M W KEHOE 41-Aero Engr  
 ....L C FRUDINGER

**NAGW 2022** **Tel-Aviv University** **8683**  
 MARS CLIMATE FOR PHOTOBOTAIC SYSTEM OPERATION  
*Period* *Obligations*  
 04/13/1990-10/31/1993 FY93: \$11,000 TOTAL: \$82,490  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 J APPELBAUM LERC/D J FLOOD 45-Elec Engr

## NETHERLANDS

**NAGW 2736** **Delft Univ of Technology-Netherlands** **8684**  
 ROLE OF GEOMETRIC IMPERFECTIONS IN THE STABILITY ANALYSIS  
 OF THIN SHELLS  
*Period* *Obligations*  
 09/19/1991-08/31/1994 FY93: \$50,000 TOTAL: \$75,001  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 J ARBOCZ LARC/J H STARNES 41-Aero Engr  
 ....M P NEMETH

## NEW ZEALAND

**NAGW 2170** **University of Canterbury** **8685**  
 ALTERNATIVE MODES OF CONTROL AND VISUAL INFORMATIO N  
 FOR ROTORCRAFT FLIGHT  
*Period* *Obligations*  
 07/24/1990-01/31/1993 FY93: \$0 TOTAL: \$71,722  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 D OWEN ARC/W W JOHNSON 69-Psych, NEC

## WEST GERMANY

**NAGW 1736** **Univ Stuttgart** **8686**  
 HIGH POWER ARC JET  
*Period* *Obligations*  
 06/02/1989-04/30/1993 FY93: \$0 TOTAL: \$344,400  
*Prin. Invest.* *NASA Tech. Officer* *CASE Category*  
 H O SCHRADER LERC/F M CURRAN 42-Astro Engr  
 M A KURTZ ....L M CARNEY

# NASA's UNIVERSITY PROGRAM

## APPENDIX

### CROSS-INDEX BY FIELD OF SCIENCE AND ENGINEERING

The Fields used here are specified by Amendment J, "Standard Classification of Fields of Science and Engineering," to Office of Management and Budget (OMB) Circular A-46, "Standards for Statistical Surveys." Field codes are interpreted as follows:

<b>PHYSICAL SCIENCES</b>	<b>ENVIRONMENTAL SCIENCES</b> (Terrestrial and extraterrestrial)	<b>LIFE SCIENCES</b>	<b>SOCIAL SCIENCES</b>
11 ASTRONOMY	31 ATMOSPHERIC SCIENCES	51 BIOLOGICAL SCIENCES	71 ANTHROPOLOGY
12 CHEMISTRY	32 GEOLOGICAL SCIENCES	54 ENVIRONMENTAL BIOLOGY	72 ECONOMICS
13 PHYSICS	33 OCEANOGRAPHY	55 AGRICULTURAL SCIENCES	73 HISTORY
19 PHYSICAL SCIENCES, NEC*	39 ENVIRONMENTAL SCIENCES, NEC*	56 MEDICAL SCIENCES	74 LINGUISTICS
		59 LIFE SCIENCES, NEC*	75 POLITICAL SCIENCE
			76 SOCIOLOGY
			79 SOCIAL SCIENCE, NEC*
<b>MATHEMATICAL/COMP SCI</b>	<b>ENGINEERING</b>	<b>PSYCHOLOGY</b>	<b>OTHER SCIENCES**</b>
21 MATHEMATICS	41 AERONAUTICAL	61 BIOLOGICAL	99 ALL DISCIPLINE(S)
22 COMPUTER SCIENCES	42 ASTRONAUTICAL	62 SOCIAL ASPECTS	
29 MATHEMATICAL COMPUTER SCIENCES, NEC*	43 CHEMICAL	69 PSYCHOLOGY, NEC*	
	44 CIVIL		
	45 ELECTRICAL		
	46 MECHANICAL		
	47 METALLURGY AND MATERIALS		
	49 ENGINEERING, NEC*		

\* Not elsewhere classified (For interdisciplinary projects and others not listed by discipline name)

\*\* For interdisciplinary projects which cannot be classified within any of the preceding main fields

Abbreviations used in the "Technical Officer Locations" column are discussed in the prefatory pages.

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
11	UNIV ALA-HUNTSVILLE	R PETRE	GSFC	Z E MUSIELAK	NAG 5-1651	1089
11	UNIV ALA-HUNTSVILLE	J P NORRIS	GSFC	W PACIESAS	NAG 5-1756	1090
11	UNIV ALA-HUNTSVILLE	R PETRE	GSFC	Z E MUSIELAK	NAG 5-1863	1091
11	UNIV ALA-HUNTSVILLE	J P NORRIS	GSFC	G EMSLIEO	NAG 5-2019	1092
11	UNIV ALA-HUNTSVILLE	J P NORRIS	GSFC	J J BRAINERD	NAG 5-2056	1093
11	UNIV ALA-HUNTSVILLE	R S SNYDER	MSFC	J I ALEXANDER	NAG 8-759	1105
11	UNIV ALA-HUNTSVILLE	D O FRAZIER	MSFC	J K BAIRD	NAG 8-816	1108
11	UNIV ALA-HUNTSVILLE	J M DAVIS	MSFC	M E MACHADO	NAG 8-872	1115
11	UNIV ALA-HUNTSVILLE	J M DAVIS	MSFC	J M FONTENLA	NAG 8-874	1116
11	UNIV ALA-HUNTSVILLE	R STACHNIK	HQ	M ZUKIC	NAGW 2898	1134
11	UNIV ALA-HUNTSVILLE	L J KALUZIENSKI	HQ	Z E MUSIELAK	NAGW 2933	1136
11	UNIV ALA-HUNTSVILLE	J E JOHNSON	MSFC	D G TORR	NAS 8-37106	1146
11	UNIV ALA-UNIV	D WEST	GSFC	R J BUTA	NAG 5-1643	1182
11	UNIV ALA-UNIV	R PETRE	GSFC	R E WHITE	NAG 5-1718	1183
11	UNIV ALA-UNIV	R PETRE	GSFC	R E WHITE	NAG 5-1973	1184
11	UNIV ALA-UNIV	D WEST	GSFC	W C KEEL	NAG 5-2134	1185
11	UNIV ALA-UNIV	J VARGUS	MSFC	R E WHITE	NAG 8-228	1189
11	UNIV ALASKA-FAIRBNKS	L J EARLY	GSFC	T J HALLINAN	NAG 5-5013	1215
11	UNIV ALASKA-FAIRBNKS	M M MELLOTT	HQ	J D CRAVEN	NAGW 2735	1227
11	UNIV ALASKA-FAIRBNKS	G H TROFFORD	GSFC	J MILLER	NCA 5-112	1243
11	ARIZONA ST U	D K WEST	GSFC	S G STARRFIELD	NAG 5-481	1263
11	ARIZONA ST U	Y KONDO	GSFC	D BURSTEIN	NAG 5-547	1264
11	ARIZONA ST U	D K WEST	GSFC	A P COWLEY	NAG 5-996	1265
11	ARIZONA ST U	R PETRE	GSFC	R A WINDHORST	NAG 5-1455	1266
11	ARIZONA ST U	R PETRE	GSFC	A P COWLEY	NAG 5-1576	1267
11	ARIZONA ST U	D WEST	GSFC	P A AANNSTAD	NAG 5-1743	1268
11	ARIZONA ST U	R PETRE	GSFC	P C SCHMIDTKE	NAG 5-1744	1269
11	ARIZONA ST U	D WEST	GSFC	S G STARRFIELD	NAG 5-1802	1270
11	ARIZONA ST U	R PETRE	GSFC	A P COWLEY	NAG 5-1976	1271
11	ARIZONA ST U	D WEST	GSFC	P C SCHMIDTKE	NAG 5-2101	1272
11	ARIZONA ST U	R PETRE	GSFC	J J HESTER	NAG 5-2211	1273
11	ARIZONA ST U	R PETRE	GSFC	R A WINDHORST	NAG 5-2322	1274



# NASA'S UNIVERSITY PROGRAM

## APPENDIX - CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
11	ARIZONA ST U	H C BRINTON	HQ	S WYCKOFF	NAGW 547	1278
11	ARIZONA ST U	G S KUTTER	HQ	S G STARRFIELD	NAGW 2628	1297
11	ARIZONA ST U	L J CAROFF	HQ	L M ZIURYS	NAGW 2989	1299
11	NORTHERN ARIZONA U	B W GUENTHER	GSFC	R L WILDEY	NAG 5-1761	1317
11	NORTHERN ARIZONA U	S GOLDSTEIN	JSC	H O HOOPER	NAG 9-518	1319
11	NORTHERN ARIZONA U	W L QUAIDE	HQ	B L LUTZ	NAGW 2811	1322
11	UNIV OF ARIZONA	C D LAUGHLIN	ARC	H P LARSON	NAG 2-206	1328
11	UNIV OF ARIZONA	L E LASHER	ARC	L R DOOSE	NAG 2-641	1332
11	UNIV OF ARIZONA	D G KOCH	ARC	E T YOUNG	NAG 2-661	1333
11	UNIV OF ARIZONA	L E LASHER	ARC	S W BOUGHER	NAG 2-679	1334
11	UNIV OF ARIZONA	Y KONDO	GSFC	J B HOLBERT	NAG 5-434	1347
11	UNIV OF ARIZONA	J I TROMBKA	GSFC	W V BOYNTON	NAG 5-790	1349
11	UNIV OF ARIZONA	D WEST	GSFC	C IMPEY	NAG 5-1235	1350
11	UNIV OF ARIZONA	D WEST	GSFC	F J LOW	NAG 5-1252	1351
11	UNIV OF ARIZONA	D WEST	GSFC	M V SYKES	NAG 5-1370	1353
11	UNIV OF ARIZONA	R PETRE	GSFC	J B HOLBERG	NAG 5-1575	1356
11	UNIV OF ARIZONA	R PETRE	GSFC	J BECHTOLD	NAG 5-1680	1358
11	UNIV OF ARIZONA	R PETRE	GSFC	S D WHITE	NAG 5-1704	1359
11	UNIV OF ARIZONA	R PETRE	GSFC	R M CUTRI	NAG 5-1711	1360
11	UNIV OF ARIZONA	R PETRE	GSFC	J W LIEBERT	NAG 5-1866	1362
11	UNIV OF ARIZONA	R PETRE	GSFC	C D IMPEY	NAG 5-1867	1363
11	UNIV OF ARIZONA	R E STREITMATTER	GSFC	T BOWEN	NAG 5-2012	1364
11	UNIV OF ARIZONA	R PETRE	GSFC	J BECHTOLD	NAG 5-2080	1365
11	UNIV OF ARIZONA	D WEST	GSFC	J W LIEBERT	NAG 5-2131	1366
11	UNIV OF ARIZONA	R OLIVERSEN	GSFC	R W TWEEDY	NAG 5-2268	1369
11	UNIV OF ARIZONA	R OLIVERSEN	GSFC	J B HOLBERG	NAG 5-2269	1370
11	UNIV OF ARIZONA	R OLIVERSEN	GSFC	J B HOLBERG	NAG 5-2311	1372
11	UNIV OF ARIZONA	M E NEIN	MSFC	J T MCGRAW	NAG 8-884	1375
11	UNIV OF ARIZONA	H C BRINTON	HQ	S M LARSON	NAGW 247	1389
11	UNIV OF ARIZONA	R V STACHNIK	HQ	M RIEKE	NAGW 520	1393
11	UNIV OF ARIZONA	H C BRINTON	HQ	D M HUNTER	NAGW 596	1394
11	UNIV OF ARIZONA	H C BRINTON	HQ	T GEHRELS	NAGW 887	1396
11	UNIV OF ARIZONA	W L QUAIDE	HQ	J B HOLBERG	NAGW 1184	1405
11	UNIV OF ARIZONA	H C BRINTON	HQ	R S MCMILLAN	NAGW 1283	1406
11	UNIV OF ARIZONA	F C GILLET	HQ	E YOUNG	NAGW 1285	1407
11	UNIV OF ARIZONA	J T BERGSTRALH	HQ	F HERBERT	NAGW 1498	1410
11	UNIV OF ARIZONA	J H RAHE	HQ	U FINK	NAGW 1549	1411
11	UNIV OF ARIZONA	J H RAHE	HQ	W B HUBBARD	NAGW 1555	1412
11	UNIV OF ARIZONA	J RAHE	HQ	C C PORCO	NAGW 1876	1417
11	UNIV OF ARIZONA	J T BERGSTRALH	HQ	M G TOMASKO	NAGW 1903	1419
11	UNIV OF ARIZONA	G S LEVY	HQ	F J LOW	NAGW 1927	1421
11	UNIV OF ARIZONA	J BERGSTRALH	HQ	S M LARSON	NAGW 1974	1424
11	UNIV OF ARIZONA	J BERGSTRALH	HQ	L A LEBOWSKY	NAGW 1975	1425
11	UNIV OF ARIZONA	J BERGSTRALH	HQ	R YELLE	NAGW 2017	1426
11	UNIV OF ARIZONA	G S KUTTER	HQ	A S BURROWS	NAGW 2145	1428
11	UNIV OF ARIZONA	W L QUAIDE	HQ	L A LEBOWSKY	NAGW 2301	1439
11	UNIV OF ARIZONA	J BERGSTRALH	HQ	A L BROADFOOT	NAGW 2359	1445
11	UNIV OF ARIZONA	G S KUTTER	HQ	D ARNETT	NAGW 2450	1450
11	UNIV OF ARIZONA	J T BERGSTRALH	HQ	S W BOUGHER	NAGW 2493	1452
11	UNIV OF ARIZONA	J A NUTH	HQ	G H RIEKE	NAGW 2606	1455
11	UNIV OF ARIZONA	R STACHNIK	HQ	J B HALBERG	NAGW 2648	1456
11	UNIV OF ARIZONA	G R RIEGLER	HQ	F MELIA	NAGW 2709	1457
11	UNIV OF ARIZONA	F GIOVANE	HQ	HOLBERG	NAGW 2720	1458
11	UNIV OF ARIZONA	W L QUAIDE	HQ	U FINK	NAGW 2752	1459
11	UNIV OF ARIZONA	W L QUAIDE	HQ	U FINK	NAGW 2761	1460
11	UNIV OF ARIZONA	W L QUAIDE	HQ	D M HUNTER	NAGW 2772	1461
11	UNIV OF ARIZONA	G R RIEGLER	HQ	F MELIA	NAGW 2822	1462
11	UNIV OF ARIZONA	W L QUAIDE	HQ	D M HUNTER	NAGW 2831	1463
11	UNIV OF ARIZONA	L J CAROFF	HQ	R I THOMPSON	NAGW 2850	1464
11	UNIV OF ARIZONA	L J CAROFF	HQ	G RIEKE	NAGW 2864	1465

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## APPENDIX - CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
11	UNIV OF ARIZONA	W L QUAIDE	HQ	W WISNIEWSKI	NAGW 2878	1467
11	UNIV OF ARIZONA	W L QUAIDE	HQ	T GEHRELS	NAGW 2882	1468
11	UNIV OF ARIZONA	G R RIEGLER	HQ	T FLEMING	NAGW 3160	1473
11	UNIV OF ARIZONA	L LAPIANA	HQ	J B HOLBERG	NAGW 3263	1477
11	UNIV OF ARIZONA	H C BRINTON	HQ	A L SPRAGUE	NAGW 3382	1481
11	UNIV OF ARIZONA	L J CAROFF	HQ	R M CUTRI	NAGW 3455	1488
11	UNIV OF ARIZONA	C D LAUGHLIN	ARC	M RIEKE	NAS 2-13464	1504
11	UNIV OF ARIZONA	J B POLLACK	ARC	W B HUBBARD	NCA 2-702	1512
11	UNIV OF ARIZONA	J B POLLACK	ARC	H J MELOSH	NCA 2-822	1515
11	UNIV OF ARIZONA	J H GOEBEL	ARC	W Z WISNIEWSKI	NCC 2-667	1517
11	UNIV OF ARIZONA	D V GALLAWAY	HQ	L A LEBOFISKY	NGT 00-010-001	1519
11	UNIV OF ARIZONA	F C OWENS	HQ	R NARAYAN	NGT 00-050-582	1534
11	UNIV OF ARIZONA	G SOFFEN	GSFC	R GREEN	NGT 00-050-758	1541
11	UNIV OF ARIZONA	F C OWENS	HQ	H J MELOSH	NGT 00-050-796	1544
11	UNIV OF ARIZONA	F C OWENS	HQ	M RIEKE	NGT 00-050-857	1545
11	UNIV OF ARIZONA	J ALEXANDER	HQ	B SANDEL	NGT 00-050-962	1547
11	UNIV OF ARIZONA	D HOLLAND	HQ	J I LUNINE	NGT 00-051-127	1552
11	UNIV OF ARIZONA	D HOLLAND	HQ	E H LEVY	NGT 00-051-139	1553
11	UNIV OF ARIZONA	D HOLLAND	HQ	C D IMPEY	NGT 00-051-152	1554
11	HARDING UNIV	N F SIX	MSFC	J MACKEY	NAG 8-197	1560
11	CALIF INST OF TECH	C D LAUGHLIN	ARC	J KEENE	NAG 2-605	1573
11	CALIF INST OF TECH	C D LAUGHLIN	ARC	J ZMUIDZINAS	NAG 2-744	1576
11	CALIF INST OF TECH	L E LASHER	ARC	Y L YUNG	NAG 2-764	1577
11	CALIF INST OF TECH	C D LAUGHLIN	ARC	B T SOIFER	NAG 2-857	1579
11	CALIF INST OF TECH	G BULLOCK	GSFC	E C STONE	NAG 5-722	1580
11	CALIF INST OF TECH	D WEST	GSFC	S KULKARNI	NAG 5-1350	1582
11	CALIF INST OF TECH	J P NORRIS	GSFC	T A PRINCE	NAG 5-1458	1583
11	CALIF INST OF TECH	R PETRE	GSFC	S R KULKARNI	NAG 5-1583	1584
11	CALIF INST OF TECH	S SOBIESKI	GSFC	J A WESTPHAL	NAG 5-1611	1585
11	CALIF INST OF TECH	R PETRE	GSFC	T A PRINCE	NAG 5-1687	1586
11	CALIF INST OF TECH	R PETRE	GSFC	C R LAWRENCE	NAG 5-1706	1587
11	CALIF INST OF TECH	R PETRE	GSFC	W L SARGENT	NAG 5-1707	1588
11	CALIF INST OF TECH	D WEST	GSFC	G NEUGEBAUER	NAG 5-1710	1589
11	CALIF INST OF TECH	D WEST	GSFC	N Z SCOVILLE	NAG 5-1716	1590
11	CALIF INST OF TECH	R PETRE	GSFC	J R MOULD	NAG 5-1739	1591
11	CALIF INST OF TECH	R PETRE	GSFC	T M HECKMAN	NAG 5-1861	1592
11	CALIF INST OF TECH	R PETRE	GSFC	T J PEARSON	NAG 5-1934	1593
11	CALIF INST OF TECH	R PETRE	GSFC	I N REID	NAG 5-1985	1594
11	CALIF INST OF TECH	J P NORRIS	GSFC	J M GRUNSFELD	NAG 5-2008	1595
11	CALIF INST OF TECH	J P NORRIS	GSFC	H ZIRIN	NAG 5-2090	1596
11	CALIF INST OF TECH	R PETRE	GSFC	S E THORSETT	NAG 5-2124	1597
11	CALIF INST OF TECH	R PETRE	GSFC	S C UNWIN	NAG 5-2167	1598
11	CALIF INST OF TECH	R STRICTMATTER	GSFC	R A MEWOLDT	NAG 5-2168	1599
11	CALIF INST OF TECH	R PETRE	GSFC	R D BLANDFORD	NAG 5-2177	1600
11	CALIF INST OF TECH	D E SMITH	GSFC	D O MUHLEMAN	NAG 5-2184	1601
11	CALIF INST OF TECH	R PETRE	GSFC	M SCHMIDT	NAG 5-2193	1602
11	CALIF INST OF TECH	F C GILLET	HQ	T G PHILLIPS	NAGW 107	1613
11	CALIF INST OF TECH	J H RAHE	HQ	D O MUHLEMAN	NAGW 1448	1616
11	CALIF INST OF TECH	G S LEVY	HQ	A I SARGENT	NAGW 1478	1617
11	CALIF INST OF TECH	J H RAHE	HQ	D O MUHLEMAN	NAGW 1499	1618
11	CALIF INST OF TECH	J T BERGSTRALH	HQ	Y L YUNG	NAGW 1509	1619
11	CALIF INST OF TECH	W V JONES	HQ	E C STONE	NAGW 1919	1623
11	CALIF INST OF TECH	J T BERGSTRALH	HQ	A P INGERSOLL	NAGW 1956	1627
11	CALIF INST OF TECH	G S KUTTER	HQ	B T SOIFER	NAGW 2144	1630
11	CALIF INST OF TECH	J A NUTH	HQ	A I SARGENT	NAGW 2196	1631
11	CALIF INST OF TECH	G S KUTTER	HQ	R D BLANDFORD	NAGW 2372	1639
11	CALIF INST OF TECH	G S KUTTER	HQ	E S PHINNEY	NAGW 2394	1640
11	CALIF INST OF TECH	L J CAROFF	HQ	G A BLAKE	NAGW 2813	1648
11	CALIF INST OF TECH	L J CAROFF	HQ	R D BLANDFORD	NAGW 2816	1649
11	CALIF INST OF TECH	R V STACHNIK	HQ	K S THORNE	NAGW 2897	1650

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## APPENDIX - CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
11	CALIF INST OF TECH	L J KALUZIENSKI	HQ	R D BLANFORD	NAGW 2920	1651
11	CALIF INST OF TECH	H C BRINTON	HQ	A I SARGENT	NAGW 3140	1657
11	CALIF INST OF TECH	G R RIEGLER	HQ	S KULKARNI	NAGW 3253	1660
11	CALIF INST OF TECH	H C BRINTON	HQ	E SARABYN	NAGW 3303	1662
11	CALIF INST OF TECH	F C OWENS	HQ	T A PRINCE	NGT 00-050-804	1690
11	CALIF INST OF TECH	J ALEXANDER	HQ	K G LIBBRECHT	NGT 00-050-818	1691
11	CALIF INST OF TECH	H ASHKENAS	JPL	B C MURRAY	NGT 00-050-891	1693
11	CALIF INST OF TECH	D HOLLAND	HQ	D STEVENSON	NGT 00-051-071	1695
11	CAL ST U-NORTHRIDGE	W J WAGNER	HQ	G A CHAPMAN	NAGW 3017	1749
11	CLAREMONT MCKENNA C	J P NORRIS	GSFC	J C HIGDON	NAG 5-2010	1756
11	SAN DIEGO STATE U	R PETRE	GSFC	A W SHAFTER	NAG 5-2064	1771
11	SAN DIEGO STATE U	F C GILLET	HQ	L LEE	NAGW 319	1772
11	SAN FRANCISCO ST U	R PETRE	GSFC	A W SHAFTER	NAG 5-1661	1784
11	SAN FRANCISCO ST U	J K ALEXANDER	HQ	G W MARCY	NAGW 3182	1786
11	SAN FRANCISCO ST U	J B POLLACK	ARC	T L ROUSH	NCC 2-815	1796
11	SAN JOSE ST U	L E LASHER	ARC	A B RAGENT	NAG 2-681	1798
11	SAN JOSE ST U	J I TROMBKA	GSFC	P ENGLERT	NAG 5-2354	1802
11	SAN JOSE ST U	P CASSEN	ARC	L TOMLEY	NCA 2-735	1816
11	SAN JOSE ST U	R E YOUNG	ARC	A BRIDGER	NCA 2-784	1821
11	SAN JOSE ST U	R E YOUNG	ARC	A BRIDGER	NCA 2-785	1822
11	SAN JOSE ST U	R M HABERLE	ARC	A F BRIDGER	NCA 2-814	1824
11	SAN JOSE ST U	A BARNES	ARC	P HAMILL	NCC 2-687	1842
11	SONOMA ST U	D WEST	GSFC	G G SPEAR	NAG 5-1621	1861
11	SONOMA ST U	R PETRE	GSFC	L R COMINSKY	NAG 5-1684	1862
11	SONOMA ST U	J P NORRIS	GSFC	L R COMINSKY	NAG 5-2032	1863
11	STANFORD UNIV	L E LASHER	ARC	D L CARPENTER	NAG 2-520	1868
11	STANFORD UNIV	J N CUZZI	ARC	G L TYLER	NAG 2-673	1871
11	STANFORD UNIV	R C HARTMAN	GSFC	P MICHELSON	NAG 5-1605	1886
11	STANFORD UNIV	J P NORRIS	GSFC	V PETROSIAN	NAG 5-2036	1887
11	STANFORD UNIV	J P NORRIA	GSFC	R W ROMANI	NAG 5-2037	1888
11	STANFORD UNIV	J T BERGSTRALH	HQ	V R ESHLEMAN	NAGW 1971	1902
11	STANFORD UNIV	L J KALUZIENSKI	HQ	R ROMANI	NAGW 2963	1915
11	STANFORD UNIV	G R RIEGLER	HQ	V PETROSIAN	NAGW 3223	1917
11	STANFORD UNIV	L J KALUZIENSKI	HQ	P F MICHELSON	NAGW 3489	1920
11	STANFORD UNIV	C STOKER	ARC	G I TYLER	NCA 2-641	1948
11	UNIV. OF CALIFORNIA	R PETRE	GSFC	H SPINRAD	NAG 5-1588	2037
11	UNIV. OF CALIFORNIA	F J GIOVANE	HQ	H W SIEGMUND	NAGW 2567	2038
11	UNIV CALIF-BERKELEY	L C HAUGHNEY	ARC	C H TOWNES	NAG 2-208	2041
11	UNIV CALIF-BERKELEY	C D LAUGHLIN	ARC	A L BETZ	NAG 2-254	2043
11	UNIV CALIF-BERKELEY	C D LAUGHLIN	ARC	R J SAYKALLY	NAG 2-858	2049
11	UNIV CALIF-BERKELEY	D WEST	GSFC	G BASRI	NAG 5-1062	2059
11	UNIV CALIF-BERKELEY	J ORMES	GSFC	G F SMOOT	NAG 5-1123	2060
11	UNIV CALIF-BERKELEY	D WEST	GSFC	C HEILES	NAG 5-1230	2061
11	UNIV CALIF-BERKELEY	J MATHER	GSFC	G F SMOOT	NAG 5-1318	2062
11	UNIV CALIF-BERKELEY	D WEST	GSFC	J SILK	NAG 5-1360	2063
11	UNIV CALIF-BERKELEY	D WEST	GSFC	C S BOWYER	NAG 5-1407	2064
11	UNIV CALIF-BERKELEY	J P NORRIS	GSFC	K C HURLEY	NAG 5-1559	2067
11	UNIV CALIF-BERKELEY	J P NORRIS	GSFC	K C HURLEV	NAG 5-1560	2068
11	UNIV CALIF-BERKELEY	S SOBIESKI	GSFC	I KING	NAG 5-1607	2069
11	UNIV CALIF-BERKELEY	B TEEGARDEN	GSFC	K C HURLEY	NAG 5-1640	2070
11	UNIV CALIF-BERKELEY	R PETRE	GSFC	A S FRUCHTER	NAG 5-1677	2071
11	UNIV CALIF-BERKELEY	R PETRE	GSFC	C S BOWYER	NAG 5-1688	2072
11	UNIV CALIF-BERKELEY	R PETRE	GSFC	S M KAHN	NAG 5-1689	2073
11	UNIV CALIF-BERKELEY	R PETRE	GSFC	K C HURLEY	NAG 5-1727	2074
11	UNIV CALIF-BERKELEY	D WEST	GSFC	A FILLPENKO	NAG 5-1800	2075
11	UNIV CALIF-BERKELEY	D WEST	GSFC	S VENNES	NAG 5-1805	2076
11	UNIV CALIF-BERKELEY	R PETRE	GSFC	H SPINRAD	NAG 5-1818	2077
11	UNIV CALIF-BERKELEY	R PETRE	GSFC	K C HURLEY	NAG 5-1851	2078
11	UNIV CALIF-BERKELEY	R PETRE	GSFC	S KAHN	NAG 5-1892	2079
11	UNIV CALIF-BERKELEY	D WEST	GSFC	CARONE	NAG 5-1988	2080

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11	UNIV CALIF-BERKELEY	J P NORRIS	GSFC	R D TRIPP	NAG 5-2009	2081
11	UNIV CALIF-BERKELEY	D WEST	GSFC	COHEN	NAG 5-2015	2082
11	UNIV CALIF-BERKELEY	J P NORRIS	GSFC	J I SILK	NAG 5-2020	2083
11	UNIV CALIF-BERKELEY	R PETRE	GSFC	A V FILIPPENKO	NAG 5-2067	2084
11	UNIV CALIF-BERKELEY	R PETRE	GSFC	J R GRAHAM	NAG 5-2088	2085
11	UNIV CALIF-BERKELEY	D WEST	GSFC	C S BOWYER	NAG 5-2135	2086
11	UNIV CALIF-BERKELEY	R PETRE	HQ	H SPINRAD	NAG 5-2182	2087
11	UNIV CALIF-BERKELEY	R PETRE	GSFC	M DAVIS	NAG 5-2195	2088
11	UNIV CALIF-BERKELEY	G SONNEBORN	GSFC	O H SIEGMUND	NAG 5-2304	2089
11	UNIV CALIF-BERKELEY	J NORRIS	GSFC	R P LIN	NAG 5-2351	2090
11	UNIV CALIF-BERKELEY	F C GILLETT	HQ	G F SMOOT	NAGW 66	2093
11	UNIV CALIF-BERKELEY	J D RUMMEL	HQ	C S BOWYER	NAGW 526	2095
11	UNIV CALIF-BERKELEY	G C CLAYTON	HQ	O H SIEGMUND	NAGW 1290	2098
11	UNIV CALIF-BERKELEY	F C GILLETT	HQ	P L RICHARDS	NAGW 1352	2099
11	UNIV CALIF-BERKELEY	L J KALUZIENSKI	HQ	K C HURLEY	NAGW 1513	2101
11	UNIV CALIF-BERKELEY	F C GILLETT	HQ	A E LANGE	NAGW 1597	2103
11	UNIV CALIF-BERKELEY	J K ALEXANDER	HQ	C F MCKEE	NAGW 1672	2105
11	UNIV CALIF-BERKELEY	J K ALEXANDER	HQ	E H SILVER	NAGW 1686	2106
11	UNIV CALIF-BERKELEY	G S LEVY	HQ	J SILK	NAGW 1860	2108
11	UNIV CALIF-BERKELEY	G CLAYTON	HQ	O SIEGMUND	NAGW 2029	2111
11	UNIV CALIF-BERKELEY	L J KALUZIENSKI	HQ	B SADOBLET	NAGW 2115	2113
11	UNIV CALIF-BERKELEY	J H RAHE	HQ	I DE PATER	NAGW 2340	2115
11	UNIV CALIF-BERKELEY	G S KUTTER	HQ	J ARONS	NAGW 2413	2116
11	UNIV CALIF-BERKELEY	G S KUTTER	HQ	D S FINLEY	NAGW 2478	2118
11	UNIV CALIF-BERKELEY	W V JONES	HQ	H J CRAWFORD	NAGW 2552	2120
11	UNIV CALIF-BERKELEY	G S KUTTER	HQ	S M KAHN	NAGW 2592	2121
11	UNIV CALIF-BERKELEY	L J KALUZIENSKI	HQ	S M KAHN	NAGW 2688	2124
11	UNIV CALIF-BERKELEY	E J WEILER	HQ	C S BUNYER	NAGW 2701	2125
11	UNIV CALIF-BERKELEY	J D RUMMEL	HQ	C S BOWYER	NAGW 2722	2126
11	UNIV CALIF-BERKELEY	J A NUTH	HQ	W WELCH	NAGW 2804	2128
11	UNIV CALIF-BERKELEY	H C BRINTON	HQ	H SPINRAD	NAGW 2883	2129
11	UNIV CALIF-BERKELEY	W L QUAIDE	HQ	P S MARCUS	NAGW 2986	2130
11	UNIV CALIF-BERKELEY	L J CAROFF	HQ	R J SAYKALLY	NAGW 2991	2131
11	UNIV CALIF-BERKELEY	L J KALUZIENSKI	HQ	R I KLEIN	NAGW 3027	2133
11	UNIV CALIF-BERKELEY	R STACHNIK	HQ	C S BOWYER	NAGW 3123	2135
11	UNIV CALIF-BERKELEY	L LAPIANA	HQ	M COHEN	NAGW 3154	2136
11	UNIV CALIF-BERKELEY	L LAPIANA	HQ	B SADOULET	NAGW 3241	2137
11	UNIV CALIF-BERKELEY	G R RIEGLER	HQ	M COHEN	NAGW 3267	2138
11	UNIV CALIF-BERKELEY	L S LAPIANA	HQ	B SADOULET	NAGW 3314	2139
11	UNIV CALIF-BERKELEY	R V STACHNIK	HQ	O H SIEGMUND	NAGW 3639	2145
11	UNIV CALIF-BERKELEY	R V STACHNIK	HQ	C S BOWYER	NAGW 3664	2146
11	UNIV CALIF-BERKELEY	A J MILLER	GSFC	R MALINA	NAS 5-29298	2148
11	UNIV CALIF-BERKELEY	A SMITH	GSFC	D HUNTEN	NAS 5-30180	2149
11	UNIV CALIF-BERKELEY	T R SMITH	MSFC	P B PRICE	NAS 8-38244	2158
11	UNIV CALIF-BERKELEY	A G TIELENS	ARC	C MCKEE	NCA 2-637	2164
11	UNIV CALIF-BERKELEY	A G TIELENS	ARC	I DE PATER	NCA 2-678	2165
11	UNIV CALIF-BERKELEY	J B POLLACK	ARC	C S BOWYER	NCA 2-763	2169
11	UNIV CALIF-BERKELEY	A TIELENS	ARC	C MCKEE	NCA 2-826	2171
11	UNIV CALIF-BERKELEY	F C WITTENBORN	ARC	C E HEILES	NCC 2-142	2174
11	UNIV CALIF-BERKELEY	D J HOLLENBACH	ARC	F H SHU	NCC 2-548	2176
11	UNIV CALIF-BERKELEY	L J EARLY	GSFC	C S BOWYER	NGR 5-3450	2180
11	UNIV CALIF-BERKELEY	J ALEXANDER	HQ	H SPINRAD	NGT 00-050-921	2206
11	UNIV CALIF-BERKELEY	D HOLLAND	HQ	J R GRAHAM	NGT 00-051-082	2211
11	UNIV CALIF-DAVIS	R PETRE	GSFC	R H BECKER	NAG 5-1759	2229
11	UNIV CALIF-DAVIS	R PETRE	GSFC	R H BECKER	NAG 5-1876	2230
11	UNIV CALIF-DAVIS	H C BRINTON	HQ	W M JACKSON	NAGW 1144	2236
11	UNIV CAL-LOS ANGELES	R O FIMMEL	ARC	R J STRANGWAY	NAG 2-485	2324
11	UNIV CAL-LOS ANGELES	L E LASHER	ARC	C RUSSELL	NAG 2-501	2325
11	UNIV CAL-LOS ANGELES	L C HAUGHNEY	ARC	B M ZUCKERMAN	NAG 2-604	2326
11	UNIV CAL-LOS ANGELES	C D LAUGHLIN	ARC	M R MORRIS	NAG 2-799	2328

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11	UNIV CAL-LOS ANGELES	D WEST	GSFC	M A MALKAN	NAG 5-575	2340
11	UNIV CAL-LOS ANGELES	A I POLAND	GSFC	R K ULRICH	NAG 5-1166	2347
11	UNIV CAL-LOS ANGELES	J MATHER	GSFC	E L WRIGHT	NAG 5-1309	2349
11	UNIV CAL-LOS ANGELES	D WEST	GSFC	M A MALKAN	NAG 5-1358	2350
11	UNIV CAL-LOS ANGELES	D WEST	GSFC	M A JURA	NAG 5-1406	2351
11	UNIV CAL-LOS ANGELES	R PETRE	GSFC	M A MALKAN	NAG 5-1719	2356
11	UNIV CAL-LOS ANGELES	D WEST	GSFC	L H ALLER	NAG 5-1799	2357
11	UNIV CAL-LOS ANGELES	D WEST	GSFC	M A MALKAN	NAG 5-2140	2360
11	UNIV CAL-LOS ANGELES	A SMITH	GSFC	M A JURA	NAG 5-2178	2361
11	UNIV CAL-LOS ANGELES	F C GILLET	HQ	M A JURA	NAGW 80	2369
11	UNIV CAL-LOS ANGELES	J BERGSTRAHL	HQ	G SCHUBERT	NAGW 1874	2381
11	UNIV CAL-LOS ANGELES	J T BERGSTRALH	HQ	C T RUSSELL	NAGW 2349	2395
11	UNIV CAL-LOS ANGELES	R V STACHNIK	HQ	D B CLINE	NAGW 3096	2411
11	UNIV CAL-LOS ANGELES	H C BRINTON	HQ	M KIVELSON	NAGW 3098	2412
11	UNIV CAL-LOS ANGELES	L J CAROFF	HQ	E E BECKLIN	NAGW 3115	2413
11	UNIV CAL-LOS ANGELES	L J CAROFF	HQ	I S MCLEAN	NAGW 3300	2416
11	UNIV CAL-LOS ANGELES	H D VITAGLIANO	GSFC	M JURA	NAS 5-29363	2435
11	UNIV CAL-LOS ANGELES	D CROSBY	GSFC	C T RUSSELL	NAS 5-30373	2436
11	UNIV CAL-LOS ANGELES	E ERICKSON	ARC	M MORRIS	NCA 2-597	2439
11	UNIV CAL-LOS ANGELES	E ERICKSON	ARC	B ZUCKERMAN	NCA 2-612	2440
11	UNIV CAL-LOS ANGELES	J K ALEXANDER	HQ	I S MCLEAN	NGT 00-050-807	2452
11	UNIV CAL-LOS ANGELES	D WEST	GSFC	M J PLAVEC	NSG-5272	2459
11	UNIV CAL-RIVERSIDE	J P NORRIS	GSFC	A D ZYCH	NAG 5-1493	2460
11	UNIV CAL-RIVERSIDE	J P NORRIS	GSFC	T J O'NEILL	NAG 5-2027	2461
11	UNIV CAL-RIVERSIDE	J P NORRIS	GSFC	A D ZYCH	NAG 5-2044	2462
11	UNIV CAL-RIVERSIDE	L J KALUZIENSKI	HQ	A ZYCH	NAGW 1996	2466
11	UNIV CAL-SAN DIEGO	D WEST	GSFC	D E GRUBER	NAG 5-1372	2493
11	UNIV CAL-SAN DIEGO	D WEST	GSFC	W H TUCKER	NAG 5-1499	2495
11	UNIV CAL-SAN DIEGO	J P NORRIS	GSFC	L E PETERSON	NAG 5-1511	2496
11	UNIV CAL-SAN DIEGO	J NORRIS	GSFC	R E LINGENFELTER	NAG 5-1597	2497
11	UNIV CAL-SAN DIEGO	S SOBIESKI	GSFC	R HARMS	NAG 5-1630	2498
11	UNIV CAL-SAN DIEGO	D WEST	GSFC	W H TUCKER	NAG 5-1692	2499
11	UNIV CAL-SAN DIEGO	A SMITH	GSFC	E BEAVER	NAG 5-1858	2500
11	UNIV CAL-SAN DIEGO	D WEST	GSFC	Y REPHAELL	NAG 5-1868	2501
11	UNIV CAL-SAN DIEGO	R PETRE	GSFC	R E ROTHSCCHILD	NAG 5-1977	2506
11	UNIV CAL-SAN DIEGO	D WEST	GSFC	Y REPHAELI	NAG 5-1995	2507
11	UNIV CAL-SAN DIEGO	R PETRE	GSFC	R D COHEN	NAG 5-2059	2508
11	UNIV CAL-SAN DIEGO	D WEST	GSFC	R D COHEN	NAG 5-2127	2509
11	UNIV CAL-SAN DIEGO	R PETRE	GSFC	Y REPHAELI	NAG 5-2197	2510
11	UNIV CAL-SAN DIEGO	J P NORRIS	GSFC	Y REPHAELI	NAG 5-2236	2511
11	UNIV CAL-SAN DIEGO	J I TROMBKA	GSFC	J R ARNOLD	NAG 5-2333	2512
11	UNIV CAL-SAN DIEGO	L J KALUZIENSKI	HQ	J L MATTESON	NAGW 449	2520
11	UNIV CAL-SAN DIEGO	J T BERGSTRALH	HQ	D A MENDIS	NAGW 1502	2525
11	UNIV CAL-SAN DIEGO	L J KALUZIENSKI	HQ	R E LINGENFELTER	NAGW 1970	2530
11	UNIV CAL-SAN DIEGO	G S KUTTER	HQ	A M WOLFE	NAGW 2119	2534
11	UNIV CAL-SAN DIEGO	W L QUAIDE	HQ	L MCFADDEN	NAGW 2849	2549
11	UNIV CAL-SAN DIEGO	L S LAPIANA	HQ	W H TUCKER	NAGW 3247	2560
11	UNIV CAL-SAN DIEGO	J L SHANNON	GSFC	R J HARMS	NAS 5-24463	2568
11	UNIV CAL-SAN DIEGO	A D VITAGLIANO	GSFC	E A BEAVER	NAS 5-30107	2569
11	UNIV CAL-SAN DIEGO	W D DAVIS	GSFC	R E ROTHSCCHILD	NAS 5-30720	2571
11	UNIV CAL-SAN DIEGO	B J SCHRICK	MSFC	J L MATTESON	NAS 8-36081	2574
11	U CAL-SANTA BARBARA	J MATHER	GSFC	P LUBIN	NAG 5-1315	2622
11	U CAL-SANTA BARBARA	F C GILLET	HQ	P M LUBIN	NAGW 1062	2626
11	U CAL-SANTA BARBARA	L LAPIANA	HQ	P M LUBIN	NAGW 3245	2642
11	U CAL-SANTA CRUZ	C D LAUGHLIN	ARC	D M RANK	NAG 2-813	2663
11	U CAL-SANTA CRUZ	R PETRE	GSFC	D C KOO	NAG 5-1604	2664
11	U CAL-SANTA CRUZ	D WEST	GSFC	G H SMITH	NAG 5-1767	2666
11	U CAL-SANTA CRUZ	D WEST	GSFC	G H SMITH	NAG 5-1916	2667
11	U CAL-SANTA CRUZ	J P NORRIS	GSFC	M HERANT	NAG 5-2073	2668
11	U CAL-SANTA CRUZ	K M JAHODA	GSFC	J R PRIMACK	NAG 5-2262	2669

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11	U CAL-SANTA CRUZ	M E NEIN	MSFC	G D ILLINGWORTH	NAG 8-932	2670
11	U CAL-SANTA CRUZ	M KAPLAN	HQ	G ILLINGSWORTH	NAGW 2415	2674
11	U CAL-SANTA CRUZ	G S KUTTER	HQ	L E HERNQUIST	NAGW 2422	2675
11	U CAL-SANTA CRUZ	G S KUTTER	HQ	S E WOOSLEY	NAGW 2525	2676
11	U CAL-SANTA CRUZ	L J CAROFF	HQ	J P BRODIE	NAGW 2965	2677
11	U CAL-SANTA CRUZ	L J KALUZIENSKI	HQ	G R BLUMENTHAL	NAGW 3105	2678
11	U CAL-SANTA CRUZ	B F SMITH	ARC	G ILLINGWORTH	NCA 2-661	2683
11	U CAL-SANTA CRUZ	J B POLLACK	ARC	P BODENHEIMER	NCA 2-679	2684
11	U CAL-SANTA CRUZ	J N CUZZI	ARC	P BODENHEIMER	NCA 2-746	2685
11	U CAL-SANTA CRUZ	B SMITH	ARC	L HERNQUIST	NCA 2-750	2686
11	U CAL-SANTA CRUZ	J D BREGMAN	ARC	D M RANK	NCA 2-777	2687
11	U CAL-SANTA CRUZ	J B POLLACK	ARC	P H BODENHEIMER	NCA 2-803	2688
11	U CAL-SANTA CRUZ	D J HOLLENBACH	ARC	P H BODENHEIMER	NCC 2-649	2690
11	U CAL-SANTA CRUZ	E W DUNHAM	ARC	D M RANK	NCC 2-744	2692
11	U CAL-SANTA CRUZ	F C OWENS	HQ	D LIN	NGT 00-050-665	2695
11	U CAL-SANTA CRUZ	F C OWENS	HQ	L HERNQUIST	NGT 00-050-855	2696
11	UNIV SOUTHERN CALIF	D WEST	GSFC	G J PETERS	NAG 5-1296	2709
11	UNIV SOUTHERN CALIF	J FISCHER	GSFC	E RHODES	NAG 5-2219	2710
11	UNIV SOUTHERN CALIF	R OLIVERSON	GSFC	G J PETERS	NAG 5-2292	2711
11	UNIV SOUTHERN CALIF	R OLIVERSEN	GSFC	G J PETERS	NAG 5-2313	2712
11	UNIV SOUTHERN CALIF	J BERGSTRAHL	HQ	D L JUDGE	NAGW 1924	2716
11	UNIV SOUTHERN CALIF	W L QUAIDE	HQ	D E SHEMANSKY	NAGW 2834	2723
11	UNIV SOUTHERN CALIF	E C WHIPPLE	HQ	M GRUNTMAN	NAGW 3520	2729
11	UNIV SOUTHERN CALIF	D WEST	GSFC	G J PETERS	NSG-5422	2744
11	UNIV COL-BOULDER	L E LASHER	ARC	A I STEWART	NAG 2-504	2805
11	UNIV COL-BOULDER	C D LAUGHLIN	ARC	A L BETZ	NAG 2-753	2806
11	UNIV COL-BOULDER	L E LASHER	ARC	L W ESPOSITO	NAG 2-861	2810
11	UNIV COL-BOULDER	D WEST	GSFC	K GARMANY	NAG 5-78	2823
11	UNIV COL-BOULDER	D WEST	GSFC	J L LINSKY	NAG 5-82	2824
11	UNIV COL-BOULDER	L J EARLY	GSFC	W C CASH	NAG 5-96	2825
11	UNIV COL-BOULDER	D WEST	GSFC	J M SHULL	NAG 5-193	2826
11	UNIV COL-BOULDER	D WEST	GSFC	T R AYRES	NAG 5-199	2827
11	UNIV COL-BOULDER	D WEST	GSFC	E W BRUGAL	NAG 5-350	2828
11	UNIV COL-BOULDER	D K WEST	GSFC	R E STENCEL	NAG 5-816	2833
11	UNIV COL-BOULDER	Y KONDO	GSFC	A BROWN	NAG 5-985	2835
11	UNIV COL-BOULDER	D WEST	GSFC	R E STENCEL	NAG 5-1214	2837
11	UNIV COL-BOULDER	D WEST	GSFC	T R AYRES	NAG 5-1215	2838
11	UNIV COL-BOULDER	D WEST	GSFC	J M SHULL	NAG 5-1224	2839
11	UNIV COL-BOULDER	R PETRE	GSFC	G A DULK	NAG 5-1526	2845
11	UNIV COL-BOULDER	R PETRE	GSFC	T R AYRES	NAG 5-1534	2846
11	UNIV COL-BOULDER	R PETRE	GSFC	J T STOCKE	NAG 5-1584	2847
11	UNIV COL-BOULDER	R PETRE	GSFC	F BAGENAL	NAG 5-1589	2848
11	UNIV COL-BOULDER	R PETRE	GSFC	J L LINSKY	NAG 5-1666	2849
11	UNIV COL-BOULDER	D WEST	GSFC	I R LITTLE-MARENIN	NAG 5-1667	2850
11	UNIV COL-BOULDER	D WEST	GSFC	G C CLAYTON	NAG 5-1672	2851
11	UNIV COL-BOULDER	D WEST	GSFC	T P SNOW	NAG 5-1701	2852
11	UNIV COL-BOULDER	D WEST	GSFC	J LINSKY	NAG 5-1764	2854
11	UNIV COL-BOULDER	R PETRE	GSFC	A R BROWN	NAG 5-1792	2855
11	UNIV COL-BOULDER	R PETRE	GSFC	T P SNOW	NAG 5-1796	2856
11	UNIV COL-BOULDER	R PETRE	GSFC	J L LINSKY	NAG 5-1797	2857
11	UNIV COL-BOULDER	R PETRE	GSFC	R E STENCEL	NAG 5-1798	2858
11	UNIV COL-BOULDER	D WEST	GSFC	R E STENCEL	NAG 5-1832	2859
11	UNIV COL-BOULDER	A SMITH	GSFC	J C BRANDT	NAG 5-1853	2860
11	UNIV COL-BOULDER	R PETRE	GSFC	J T STOCKE	NAG 5-1857	2861
11	UNIV COL-BOULDER	R PETRE	GSFC	Q WANG	NAG 5-1879	2862
11	UNIV COL-BOULDER	R PETRE	GSFC	J L LINSKY	NAG 5-1887	2863
11	UNIV COL-BOULDER	D WEST	GSFC	P S CONTI	NAG 5-1956	2866
11	UNIV COL-BOULDER	D WEST	GSFC	Q WANG	NAG 5-2014	2867
11	UNIV COL-BOULDER	J P NORRIS	GSFC	M C BEGELMAN	NAG 5-2026	2868
11	UNIV COL-BOULDER	D WEST	GSFC	J L LINSKY	NAG 5-2054	2869

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11	UNIV COL-BOULDER	R PETRE	GSFC	J LINSKY	NAG 5-2075	2870
11	UNIV COL-BOULDER	D WEST	GSFC	J M SHULL	NAG 5-2122	2871
11	UNIV COL-BOULDER	D WEST	GSFC	G C CLAYTON	NAG 5-2143	2872
11	UNIV COL-BOULDER	D WEST	GSFC	P S CONTI	NAG 5-2147	2873
11	UNIV COL-BOULDER	R PETRE	GSFC	A HAMILTON	NAG 5-2151	2874
11	UNIV COL-BOULDER	D WEST	GSFC	J L LINSKY	NAG 5-2161	2875
11	UNIV COL-BOULDER	R OLIVERSEN	GSFC	A BROWN	NAG 5-2259	2877
11	UNIV COL-BOULDER	R OLIVERSEN	GSFC	T R AYRES	NAG 5-2274	2878
11	UNIV COL-BOULDER	R OLIVERSON	GSFC	J C GREEN	NAG 5-2283	2879
11	UNIV COL-BOULDER	R OLIVERSEN	GSFC	T P SNOW	NAG 5-2319	2881
11	UNIV COL-BOULDER	G C CLAYTON	HQ	J M SCHULL	NAGW 766	2896
11	UNIV COL-BOULDER	J H RAHE	HQ	J C BRANDT	NAGW 1387	2906
11	UNIV COL-BOULDER	L J KALUZIENSKI	HQ	J M SHULL	NAGW 1479	2910
11	UNIV COL-BOULDER	J WEISS	HQ	E W BRUGEL	NAGW 1902	2917
11	UNIV COL-BOULDER	G S KUTTEN	HQ	E W BRUGEL	NAGW 2258	2928
11	UNIV COL-BOULDER	J T BERGSTRALH	HQ	S R LEONE	NAGW 2438	2934
11	UNIV COL-BOULDER	W QUAIDE	HQ	N M SCHNEIDER	NAGW 2484	2935
11	UNIV COL-BOULDER	J H RAHE	HQ	N M SCNEIDER	NAGW 2492	2937
11	UNIV COL-BOULDER	G S KUTTER	HQ	J T STOCKE	NAGW 2675	2942
11	UNIV COL-BOULDER	R STACHNIK	HQ	R MCCRAY	NAGW 2900	2953
11	UNIV COL-BOULDER	R STACHNIK	HQ	A BROWN	NAGW 2904	2954
11	UNIV COL-BOULDER	L J CAROFF	HQ	A L BETZ	NAGW 2954	2956
11	UNIV COL-BOULDER	W L QUAIDE	HQ	R T CLANCY	NAGW 2995	2962
11	UNIV COL-BOULDER	L J KALUZIENSKI	HQ	M C BEGELMAN	NAGW 3016	2963
11	UNIV COL-BOULDER	L J CAROFF	HQ	R E STENCEL	NAGW 3177	2967
11	UNIV COL-BOULDER	G R RIEGLER	HQ	E BRUGEL	NAGW 3192	2968
11	UNIV COL-BOULDER	J D RUMMEL	HQ	A L BETZ	NAGW 3196	2969
11	UNIV COL-BOULDER	L S LAPIANA	HQ	T R AYRES	NAGW 3284	2973
11	UNIV COL-BOULDER	H R MILLER	HQ	M C BEGELMAN	NAGW 3554	2980
11	UNIV COL-BOULDER	R STACHNIK	HQ	J C GREEN	NAGW 3593	2982
11	UNIV COL-BOULDER	C MORROW	HQ	J BENNETT	NAGW 3667	2985
11	UNIV COL-BOULDER	D K WEST	GSFC	E W BRUGEL	NAS 5-28731	2988
11	UNIV COL-BOULDER	R J OLIVERSON	GSFC	B DOMIK	NAS 5-31860	2994
11	UNIV COL-BOULDER	J ALEXANDER	HQ	P S CONTI	NGT 00-050-809	3044
11	UNIV COL-BOULDER	F C OWENS	HQ	W C CASH	NGT 00-050-813	3045
11	UNIV COL-BOULDER	D HOLLAND	HQ	N M SCHNEIDER	NGT 00-051-091	3060
11	UNIV COL-BOULDER	D WEST	GSFC	T P SNOW JR	NSG-5300	3072
11	UNIV COL-BOULDER	L J EARLY	GSFC	T P SNOW JR.	NSG-5303	3073
11	UNIV DENVER	R PETRE	HQ	R E STENCEL	NAG 5-2094	3085
11	UNIV DENVER	D WEST	GSFC	R E STENCEL	NAG 5-2103	3086
11	UNIV DENVER	L J CAROFF	HQ	R E STENCEL	NAGW 3680	3087
11	UNIV DENVER	R GOLDBERG	GSFC	F WHITE	NAS 5-29311	3088
11	UNIV SOUTHERN COL	R PETRE	GSFC	T P SNOW	NAG 5-1457	3096
11	YALE UNIV	R PETRE	GSFC	C D BAILYN	NAG 5-1619	3120
11	YALE UNIV	D WEST	GSFC	N Z KENNY	NAG 5-1803	3121
11	YALE UNIV	G S KUTTER	HQ	C BAILYN	NAGW 2469	3125
11	YALE UNIV	G S KUTTER	HQ	P DEMARQUE	NAGW 2531	3126
11	YALE UNIV	R STACHNIK	HQ	A OEMLER	NAGW 2937	3127
11	YALE UNIV	R STACHNIK	HQ	A OEMLER	NAGW 3563	3128
11	YALE UNIV	F C OWENS	HQ	S SOFIA	NGT 00-050-651	3135
11	DELAWARE STATE COL	C R CHAPPELL	MSFC	P DIMARIC	NAG 8-248	3144
11	UNIV DELAWARE	R PETRO	GSFC	H SHIPMAN	NAG 5-1654	3148
11	UNIV DELAWARE	G S KUTTER	HQ	S P CWOCKI	NAGW 2624	3154
11	UNIV DELAWARE	J ALEXANDER	HQ	S P OWOCKI	NGT 00-050-806	3162
11	GALLAUDET COLLEGE	R E STREITMATTER	GSFC	H D SNYDER	NAG 5-1812	3166
11	GEORGE WASHINGTON U	H C BRINTON	HQ	J M LOGSDON	NAGW 3295	3183
11	CATHOLIC UNIV	D K WEST	GSFC	F C BRUHWEILER	NAG 5-296	3221
11	CATHOLIC UNIV	D WEST	GSFC	F C BRUHWEILER	NAG 5-1353	3223
11	CATHOLIC UNIV	A SMITH	GSFC	F C BRUHWEILER	NAG 5-1413	3224
11	CATHOLIC UNIV	A M SMITH	GSFC	C H LYU	NAG 5-1414	3225

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11	CATHOLIC UNIV	R PETRE	GSFC	F BRUHWEILER	NAG 5-1580	3227
11	CATHOLIC UNIV	D WEST	GSFC	F BRUHWEILER	NAG 5-1783	3228
11	CATHOLIC UNIV	R S POLIDAN	GSFC	F C BRUHWEILER	NAG 5-2057	3229
11	CATHOLIC UNIV	R O LIVERSON	GSFC	F C BRUHWEILER	NAG 5-2284	3231
11	CATHOLIC UNIV	L ORWIG	GSFC	C WERTNZ	NSG-5066	3233
11	ECKERD COLLEGE	M H MOORE	GSFC	R L HUDSON	NAG 5-1843	3241
11	FLA INTERNATIONAL U	D WEST	GSFC	J R WEBB	NAG 5-1735	3246
11	FLA INTERNATIONAL U	F SIX	MSFC	N MUNROE	NAG 8-283	3248
11	FLORIDA INST OF TECH	F SIX	MSFC	J D PATTERSON	NAG 8-195	3282
11	UNIV FLORIDA	D WEST	GSFC	S F DERMOTT	NAG 5-1725	3383
11	UNIV FLORIDA	F SIX	MSFC	R E WILSON	NAG 8-245	3385
11	UNIV FLORIDA	F HORZ	JSC	S F DERMOTT	NAG 9-630	3389
11	UNIV FLORIDA	J T BERGSTRALH	HQ	B GUSTAFSON	NAGW 2482	3392
11	UNIV FLORIDA	W L QUAIDE	HQ	B A GUSTAFSON	NAGW 2775	3394
11	UNIV FLORIDA	L J CAROFF	HQ	M T VALA	NAGW 2957	3395
11	UNIV FLORIDA	L J CAROFF	HQ	P RAMOND	NAGW 3055	3397
11	UNIV FLORIDA	L S LAPIANA	HQ	S F DERMOTT	NAGW 3237	3398
11	UNIV FLORIDA	J ALEXANDER	HQ	J H HUNTER	NGT 00-050-805	3413
11	UNIV FLORIDA	F C OWENS	HQ	R E WILSON	NGT 00-050-815	3414
11	UNIV FLORIDA	J K ALEXANDER	HQ	H CAMPINS	NGT 00-050-959	3415
11	UNIV FLORIDA	D K RUSSELL	HQ	T D CARR	NGT 00-070-332	3418
11	GEORGIA INST OF TECH	D H BROCKER	ARC	P G STEFFES	NAG 2-700	3498
11	GEORGIA INST OF TECH	F C OWENS	HQ	W L CHAMEIDES	NGT 00-050-765	3553
11	GEORGIA ST U	D WEST	GSFC	W BAGNUOLO	NAG 5-1994	3580
11	GEORGIA ST U	D WEST	GSFC	GIES	NAG 5-2148	3581
11	UNIV GEORGIA		GSFC	J P CAILLAULT	NAG 5-1608	3602
11	UNIV GEORGIA	R PETRE	GSFC	J P CAILLAULT	NAG 5-1610	3603
11	UNIV GEORGIA	R PETRE	GSFC	J S SHAW	NAG 5-2095	3604
11	UNIV GEORGIA	C R CHAPPELL	MSFC	J S SHAW	NAG 8-148	3605
11	UNIV GEORGIA	L J CAROFF	HQ	J CAILLAULT	NAGW 3469	3608
11	UNIV HAWAII-MANOA	D WEST	GSFC	T SIMON	NAG 5-146	3616
11	UNIV HAWAII-MANOA	R PETRE	GSFC	J P HENRY	NAG 5-1446	3618
11	UNIV HAWAII-MANOA	J P NORRIS	GSFC	R C CANFIELD	NAG 5-1574	3619
11	UNIV HAWAII-MANOA	R PETRE	GSFC	J P HENRY	NAG 5-1685	3620
11	UNIV HAWAII-MANOA	D WEST	GSFC	D B SANDERS	NAG 5-1741	3621
11	UNIV HAWAII-MANOA	R PETRE	GSFC	R B TULLY	NAG 5-1752	3622
11	UNIV HAWAII-MANOA	R PETRE	GSFC	J P HENRY	NAG 5-1789	3623
11	UNIV HAWAII-MANOA	D WEST	GSFC	T SIMON	NAG 5-1823	3624
11	UNIV HAWAII-MANOA	R PETRE	GSFC	J P HENRY	NAG 5-1880	3626
11	UNIV HAWAII-MANOA	R PETRE	GSFC	L L COWIE	NAG 5-1928	3627
11	UNIV HAWAII-MANOA	D WEST	GSFC	J P HENRY	NAG 5-1996	3628
11	UNIV HAWAII-MANOA	R PETRE	GSFC	T SIMON	NAG 5-2022	3629
11	UNIV HAWAII-MANOA	R PETRE	GSFC	K C CHAMBERS	NAG 5-2132	3630
11	UNIV HAWAII-MANOA	D WEST	GSFC	T SIMON	NAG 5-2150	3631
11	UNIV HAWAII-MANOA	R OLIVERSEN	GSFC	T SIMON	NAG 5-2275	3632
11	UNIV HAWAII-MANOA	H C BRINTON	HQ	W J BELL	NAGW 802	3644
11	UNIV HAWAII-MANOA	F C GILLET	HQ	L L COWIE	NAGW 959	3646
11	UNIV HAWAII-MANOA	J H RAHE	HQ	D C JEWITT	NAGW 1507	3652
11	UNIV HAWAII-MANOA	J RAHE	HQ	K J MEECH	NAGW 1897	3656
11	UNIV HAWAII-MANOA	H C BRINTON	HQ	D B HALL	NAGW 1916	3657
11	UNIV HAWAII-MANOA	J H RAHE	HQ	D J THOLEN	NAGW 1991	3659
11	UNIV HAWAII-MANOA	J H RAHE	HQ	D J THOLEN	NAGW 2019	3660
11	UNIV HAWAII-MANOA	L KALUZIENSKI	HQ	B A SMITH	NAGW 2463	3664
11	UNIV HAWAII-MANOA	J RAHE	HQ	T OWEN	NAGW 2650	3668
11	UNIV HAWAII-MANOA	R H RAHE	HQ	J SPENCER	NAGW 2671	3669
11	UNIV HAWAII-MANOA	W L QUAIDE	HQ	D C JEWITT	NAGW 2917	3670
11	UNIV HAWAII-MANOA	H C BRINTON	HQ	D J THOLEN	NAGW 3044	3674
11	UNIV HAWAII-MANOA	H C BRINTON	HQ	D J THOLEN	NAGW 3093	3675
11	UNIV HAWAII-MANOA	H C BRINTON	HQ	B SMITH	NAGW 3099	3676
11	UNIV HAWAII-MANOA	H C BRINTON	HQ	P G LUCEY	NAGW 3409	3681



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11	UNIV HAWAII-MANOA	H C BRINTON	HQ	P LUCEY	NAGW 3427	3682
11	UNIV HAWAII-MANOA	W J WAGNER	HQ	D BRAUN	NAGW 3548	3687
11	UNIV HAWAII-MANOA	H C BRINTON	HQ	D HALL	NAGW 3643	3688
11	UNIV HAWAII-MANOA	H C BRINTON	HQ	P LUCEY	NAGW 3712	3690
11	UNIV HAWAII-MANOA	J F MCGARRY	GSFC	L MACKNIK	NAS 5-30535	3694
11	UNIV HAWAII-MANOA	J RAHE	HQ	D B HALL	NASW 4481	3697
11	UNIV HAWAII-MANOA	J ALEXANDER	HQ	J P HENRY	NGT 00-050-811	3705
11	UNIV HAWAII-MANOA	D HOLLAND	HQ	B LABONTE	NGT 00-051-124	3707
11	IDAHO ST U	F SIX	MSFC	S JOHNSON	NAG 8-269	3708
11	UNIV IDAHO	J B POLLACK	ARC	D H ATKINSON	NCA 2-794	3717
11	NORTHWESTERN UNIV	L J EARLY	GSFC	M P ULMER	NAG 5-181	3741
11	NORTHWESTERN UNIV	R PETRE	GSFC	M P ULMER	NAG 5-1633	3743
11	NORTHWESTERN UNIV	R PETRE	GSFC	D M MEYER	NAG 5-1779	3744
11	NORTHWESTERN UNIV	D WEST	GSFC	D M MAYER	NAG 5-1801	3745
11	NORTHWESTERN UNIV	D WEST	GSFC	F YUSEF-ZADEH	NAG 5-2105	3748
11	NORTHWESTERN UNIV	G S KUTTER	HQ	R E TAAM	NAGW 2526	3753
11	NORTHWESTERN UNIV	J K ALEXANDER	HQ	J B KETTERSON	NAGW 2859	3755
11	NORTHWESTERN UNIV	L J KALUZIENSKI	HQ	G S MILLER	NAGW 2935	3756
11	NORTHWESTERN UNIV	R STACHNIK	HQ	L S FINN	NAGW 2936	3757
11	UNIV CHICAGO	L E LASHER	ARC	M S TURNER	NAG 2-765	3782
11	UNIV CHICAGO	G BULLOCK	GSFC	J A SIMPSON	NAG 5-706	3786
11	UNIV CHICAGO	G BULLOCK	GSFC	P O MEYER	NAG 5-1086	3789
11	UNIV CHICAGO	D WEST	GSFC	D E WELTY	NAG 5-1434	3790
11	UNIV CHICAGO	J P NORRIS	GSFC	D Q LAMB	NAG 5-1454	3791
11	UNIV CHICAGO	R PETRE	GSFC	R ROSNER	NAG 5-1596	3793
11	UNIV CHICAGO	R PETRE	GSFC	D Q LAMB	NAG 5-1646	3794
11	UNIV CHICAGO	D WEST	GSFC	D E WELTY	NAG 5-1650	3795
11	UNIV CHICAGO	J P NORRIS	GSFC	D Q LAMB	NAG 5-1757	3796
11	UNIV CHICAGO	R PETRE	GSFC	R ROSNER	NAG 5-1856	3797
11	UNIV CHICAGO	J P NORRIS	GSFC	J W TRURAN	NAG 5-2081	3799
11	UNIV CHICAGO	J P NORRIS	GSFC	P COPPI	NAG 5-2099	3800
11	UNIV CHICAGO	D WEST	GSFC	A KONIGI	NAG 5-2265	3802
11	UNIV CHICAGO	I D BROWNE	JSC	R N CLAYTON	NAG 9-51	3806
11	UNIV CHICAGO	L J KALUZIENSKI	HQ	D Q LAMB JR	NAGW 830	3811
11	UNIV CHICAGO	G C CLAYTON	HQ	D N SCHRAMM	NAGW 1321	3813
11	UNIV CHICAGO	L J KALUZIENSKI	HQ	A KONIGL	NAGW 1636	3817
11	UNIV CHICAGO	G S KUTTER	HQ	A KOENIGL	NAGW 2379	3828
11	UNIV CHICAGO	W V JONES	HQ	P C FRISCH	NAGW 2610	3831
11	UNIV CHICAGO	L S LAPIANA	HQ	D A HARPER	NAGW 2959	3832
11	UNIV CHICAGO	L J CAROFF	HQ	R H HILDEBRAND	NAGW 3057	3833
11	UNIV CHICAGO	L S LAPIANA	HQ	D A HARPER	NAGW 3252	3838
11	UNIV CHICAGO	R O WALES	GSFC	J A SIMPSON	NAS 5-30117	3848
11	UNIV CHICAGO	B F SMITH	ARC	R H MILLER	NCC 2-265	3849
11	UNIV CHICAGO	C D LAUGHLIN	ARC	D A HARPER JR	NGR14-1227	3851
11	UNIV CHICAGO	F C OWENS	HQ	A KONIGL	NGT 00-050-529	3856
11	UNIV CHICAGO	F C OWENS	HQ	D Q LAMB	NGT 00-050-778	3860
11	UNIV CHICAGO	M MOORE	ARC	R H HILDEBRAND	NGT 00-050-894	3863
11	UNIV CHICAGO	D HOLLAND	HQ	D Q LAMB	NGT 00-051-059	3866
11	UNIV CHICAGO	D HOLLAND	HQ	S MEYER	NGT 00-051-157	3869
11	UNIV CHICAGO	L C HAUGHNEY	ARC	R H HILDEBRAND	NSG-2057	3870
11	UNIV ILLINOIS URBANA	D WEST	GSFC	J B KALER	NAG 5-1400	3908
11	UNIV ILLINOIS URBANA	J NORRIS	GSFC	J W TRURAN	NAG 5-1565	3909
11	UNIV ILLINOIS URBANA	D WEST	GSFC	Y CHU	NAG 5-1755	3910
11	UNIV ILLINOIS URBANA	R PETRE	GSFC	Y H CHU	NAG 5-1900	3912
11	UNIV ILLINOIS URBANA	R PETRE	GSFC	J R DICKEL	NAG 5-2018	3913
11	UNIV ILLINOIS URBANA	D WEST	GSFC	Y H CHU	NAG 5-2112	3915
11	UNIV ILLINOIS URBANA	R PETRE	GSFC	M MACLOW	NAG 5-2245	3918
11	UNIV ILLINOIS URBANA	F C GILLET	HQ	W D WATSON	NAGW 1104	3922
11	UNIV ILLINOIS URBANA	H C BRINTON	HQ	L E SNYDER	NAGW 1131	3923
11	UNIV ILLINOIS URBANA	L J KALUZIENSKI	HQ	F K LAMB	NAGW 1583	3924

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11	UNIV ILLINOIS URBANA	G S KUTTER	HQ	J W TRURAN	NAGW 2421	3928
11	UNIV ILLINOIS URBANA	R V STACHNIK	HQ	R F WEBBINK	NAGW 2996	3931
11	DE PAUW UNIV	J P NORRIS	GSFC	M P KERTZMAN	NAG 5-1513	3963
11	INDIANA U-BLOOMINGTN	J N CUZZI	ARC	R H DURISEN	NAG 2-762	3972
11	INDIANA U-BLOOMINGTN	B G BILLS	GSFC	M W HAMBURGER	NAG 5-1941	3975
11	INDIANA U-BLOOMINGTN	D WEST	GSFC	H R JOHNSON	NAG 5-2106	3976
11	INDIANA U-BLOOMINGTN	G S KUTTER	HQ	H N COHN	NAGW 2400	3980
11	PURDUE UNIV	J P NORRIS	GSFC	G H SEMBROSKI	NAG 5-1514	4019
11	PURDUE UNIV	H C BRINTON	HQ	T S ZWIER	NAGW 3019	4034
11	PURDUE UNIV	H C BRINTON	HQ	M E LIPSCHUTZ	NAGW 3396	4036
11	PURDUE UNIV	G SOFFEN	GSFC	HARSHVARDHAN	NGT 00-050-963	4060
11	ROSE-HULMAN I OF T	D GLENAR	GSFC	R WAITE	NAG 5-2176	4068
11	UNIV NOTRE DAME	C D LAUGHLIN	ARC	S C TEGLER	NAG 2-745	4071
11	VALPARISO UNIV	D WEST	GSFC	B J HRIVNAK	NAG 5-1223	4087
11	VALPARISO UNIV	F SIX	MSFC	B J HRIVNAK	NAG 8-232	4088
11	IOWA ST U	Y KONDO	GSFC	L A WILLSON	NAG 5-707	4107
11	IOWA ST U	R PETRE	GSFC	D G LUTTERMOSER	NAG 5-1655	4110
11	IOWA ST U	D WEST	GSFC		NAG 5-1777	4111
11	IOWA ST U	J P NORRIS	GSFC	R C LAMB	NAG 5-2047	4112
11	IOWA ST U	J A PEDELTY	GSFC	P N APPLETON	NAG 5-2286	4113
11	IOWA ST U	C S LEVY	HQ	C MARCELL	NAGW 2157	4116
11	IOWA ST U	L LAPIANA	HQ	P L WILSON	NAGW 3243	4120
11	UNIV IOWA	L E LASHER	ARC	J A VAN ALLEN	NAG 2-571	4140
11	UNIV IOWA	G BULLOCK	GSFC	L A FRANK	NAG 5-295	4142
11	UNIV IOWA	D WEST	GSFC	J D FIX	NAG 5-1174	4148
11	UNIV IOWA	D NOEVER	MSFC	J GOREE	NAG 8-292	4156
11	UNIV IOWA	J T BERGSTRALH	HQ	R A SMITH	NAGW 2098	4165
11	UNIV IOWA	F WAINSCOTT	GSFC	L A FRANK	NAS 5-26858	4174
11	UNIV KANSAS	D WEST	GSFC	B TWALOG	NAG 5-1765	4199
11	UNIV KANSAS	G C CLAYTON	HQ	A L MELOTT	NAGW 1288	4205
11	UNIV KANSAS	J T BERGSTRALH	HQ	T E CRAVENS	NAGW 1588	4207
11	UNIV KANSAS	F C OWENS	HQ	A L MELOTT	NGT 00-050-816	4232
11	UNIV KENTUCKY	G R RIEGLER	HQ	G FERLAND	NAGW 3315	4246
11	UNIV KENTUCKY	E J CAROFF	HQ	I SHLOSMAN	NAGW 3317	4247
11	LA ST U-BATON ROUGE	D WEST	GSFC	J S DRILLING	NAG 5-71	4259
11	LA ST U-BATON ROUGE	J P NORRIS	GSFC	R C SVOBODA	NAG 5-1520	4260
11	LA ST U-BATON ROUGE	J P NORRIS	GSFC	R C SVOBODA	NAG 5-2062	4261
11	LA ST U-BATON ROUGE	D WEST	GSFC	D KOESTER	NAG 5-2113	4262
11	LA ST U-BATON ROUGE	R PETRE	GSFC	D KOESTER	NAG 5-2229	4263
11	LA ST U-BATON ROUGE	J BERGSTRALH	HQ	Y K HO	NAGW 2033	4268
11	LA ST U-BATON ROUGE	G S KUTTER	HQ	D G KOESTER	NAGW 2137	4270
11	LA ST U-BATON ROUGE	G S KUTTER	HQ	J FRANK	NAGW 2447	4271
11	LA ST U-BATON ROUGE	R STACHNIK	HQ	A U LANDOLT	NAGW 2911	4273
11	CHARLES COMMUNITY COL	J A NUTH	GSFC	G F KRAUSE	NAG 5-1377	4322
11	JOHNS HOPKINS UNIV	L E LASHER	ARC	E C ROELOF	NAG 2-642	4326
11	JOHNS HOPKINS UNIV	D WEST	GSFC	W P BLAIR	NAG 5-988	4329
11	JOHNS HOPKINS UNIV	G SONNEBORN	GSFC	S D FRIEDMAN	NAG 5-1119	4331
11	JOHNS HOPKINS UNIV	D WEST	GSFC	W BLAIR	NAG 5-1276	4332
11	JOHNS HOPKINS UNIV	D WEST	GSFC	R C HENRY	NAG 5-1282	4333
11	JOHNS HOPKINS UNIV	R PETRE	GSFC	W BLAIR	NAG 5-1537	4338
11	JOHNS HOPKINS UNIV	R PETRE	GSFC	R BURG	NAG 5-1538	4339
11	JOHNS HOPKINS UNIV	S SOBIESKI	GSFC	W G FASTIE	NAG 5-1617	4341
11	JOHNS HOPKINS UNIV	R PETRE	GSFC	G A KRISS	NAG 5-1636	4342
11	JOHNS HOPKINS UNIV	R PETRE	GSFC	T M HECKMAN	NAG 5-1638	4343
11	JOHNS HOPKINS UNIV	D WEST	GSFC	H W MOOS	NAG 5-1676	4346
11	JOHNS HOPKINS UNIV	D WEST	GSFC	P D FELDMAN	NAG 5-1705	4347
11	JOHNS HOPKINS UNIV	D WEST	GSFC	T M HECKMAN	NAG 5-1774	4349
11	JOHNS HOPKINS UNIV	D WEST	GSFC	H W MOOS	NAG 5-1775	4350
11	JOHNS HOPKINS UNIV	D WEST	GSFC	W P BLAIR	NAG 5-1793	4351
11	JOHNS HOPKINS UNIV	D WEST	GSFC	H W MOOS	NAG 5-1922	4353

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11	JOHNS HOPKINS UNIV	R PETRE	GSFC	G A KRISS	NAG 5-1952	4354
11	JOHNS HOPKINS UNIV	R PETRE	GSFC	W P BLAIR	NAG 5-1953	4355
11	JOHNS HOPKINS UNIV	R PETRE	GSFC	T M HECKMAN	NAG 5-1991	4356
11	JOHNS HOPKINS UNIV	J P NORRIS	GSFC	J H KROLIK	NAG 5-2052	4358
11	JOHNS HOPKINS UNIV	D WEST	GSFC	D D FELDMAN	NAG 5-2141	4360
11	JOHNS HOPKINS UNIV	R OLIVERSEN	GSFC	H W MOOS	NAG 5-2276	4364
11	JOHNS HOPKINS UNIV	R OLIVERSEN	GSFC	W P BLAIR	NAG 5-2298	4365
11	JOHNS HOPKINS UNIV	R OLIVERSEN	GSFC	J N MURTHY	NAG 5-2299	4366
11	JOHNS HOPKINS UNIV	R OLIVERSEN	GSFC	R B HENRY	NAG 5-2341	4367
11	JOHNS HOPKINS UNIV	R OLIVERSEN	GSFC	R H BUSS	NAG 5-2342	4368
11	JOHNS HOPKINS UNIV	M E NEIN	MSFC	C C KILGUS	NAG 8-857	4370
11	JOHNS HOPKINS UNIV	J BERGSTRALH	HQ	L J PAXTON	NAGW 2178	4380
11	JOHNS HOPKINS UNIV	G S KUTTER	HQ	R BURG	NAGW 2508	4386
11	JOHNS HOPKINS UNIV	L J CAROFF	HQ	J H KROLIK	NAGW 2803	4391
11	JOHNS HOPKINS UNIV	J K ALEXANDER	HQ	D M RUST	NAGW 2866	4393
11	JOHNS HOPKINS UNIV	R STACHNIK	HQ	R F WYSE	NAGW 2892	4395
11	JOHNS HOPKINS UNIV	R STACHNIK	HQ	D A NEUFELD	NAGW 2910	4396
11	JOHNS HOPKINS UNIV	R STACHNIK	HQ	J H KROLIK	NAGW 3090	4401
11	JOHNS HOPKINS UNIV	L J KALUZIENSKI	HQ	J H KROLIK	NAGW 3129	4402
11	JOHNS HOPKINS UNIV	G R REGLER	HQ	D NEUFELD	NAGW 3147	4403
11	JOHNS HOPKINS UNIV	G R RIEGLER	HQ	J KROLIK	NAGW 3156	4404
11	JOHNS HOPKINS UNIV	L J CAROFF	HQ	D A NEUFELD	NAGW 3183	4405
11	JOHNS HOPKINS UNIV	L S LAPIANA	HQ	J H KROLIK	NAGW 3257	4406
11	JOHNS HOPKINS UNIV	L KALUZIENSKI	HQ	R E GRIFFITHS	NAGW 3288	4407
11	JOHNS HOPKINS UNIV	J H OWENS	MSFC	A DAVIDSEN	NAS 5-27000	4414
11	JOHNS HOPKINS UNIV	E F THOMAS	GSFC	W MOOS	NAS 5-31248	4416
11	JOHNS HOPKINS UNIV	D WEST	GSFC	H W MOOS	NSG-5393	4425
11	UNIV MD-COLLEGE PARK	L C HAUGHNEY	ARC	L G MUNDY	NAG 2-557	4456
11	UNIV MD-COLLEGE PARK	L E LASHER	ARC	F B MCDONALD	NAG 2-627	4457
11	UNIV MD-COLLEGE PARK	C D LAUGHLIN	ARC	J E HOWE	NAG 2-856	4461
11	UNIV MD-COLLEGE PARK	J C PEARL	GSFC	R K KHANNA	NAG 5-216	4466
11	UNIV MD-COLLEGE PARK	D WEST	GSFC	M F A'HEARN	NAG 5-252	4467
11	UNIV MD-COLLEGE PARK	G BULLOCK	GSFC	G GLOECKLER	NAG 5-705	4468
11	UNIV MD-COLLEGE PARK	G BULLOCK	GSFC	F M IPAVICH	NAG 5-728	4470
11	UNIV MD-COLLEGE PARK	T KOSTIUK	GSFC	J D TRASCO	NAG 5-1134	4479
11	UNIV MD-COLLEGE PARK	F C JONES	GSFC	J D TRASCO	NAG 5-1176	4481
11	UNIV MD-COLLEGE PARK	D WEST	GSFC	M A A'HEARN	NAG 5-1272	4482
11	UNIV MD-COLLEGE PARK	N LAI	GSFC	F MCDONALD	NAG 5-1299	4483
11	UNIV MD-COLLEGE PARK	S P MARAN	GSFC	M R KUNDU	NAG 5-1301	4484
11	UNIV MD-COLLEGE PARK	J P NORRIS	GSFC	M R KUNDU	NAG 5-1450	4487
11	UNIV MD-COLLEGE PARK	R PETRE	GSFC	A S WILSON	NAG 5-1532	4489
11	UNIV MD-COLLEGE PARK	J R HEIRTZLER	GSFC	R A BELL	NAG 5-1694	4492
11	UNIV MD-COLLEGE PARK	B PUTNEY	GSFC	R A BELL	NAG 5-1695	4493
11	UNIV MD-COLLEGE PARK	D WEST	GSFC	L BLITZ	NAG 5-1736	4495
11	UNIV MD-COLLEGE PARK	R PETRE	GSFC	A S WILSON	NAG 5-1886	4501
11	UNIV MD-COLLEGE PARK	C J CRANNELL	GSFC	M R KUNDU	NAG 5-2001	4507
11	UNIV MD-COLLEGE PARK	R PETRE	GSFC	V L TRIMBLE	NAG 5-2011	4510
11	UNIV MD-COLLEGE PARK	D WEST	GSFC	M F A'HEARN	NAG 5-2093	4513
11	UNIV MD-COLLEGE PARK	J TUELLER	GSFC	M LEVENTHAL	NAG 5-2296	4518
11	UNIV MD-COLLEGE PARK	J NORRIS	GSFC	M J ASCHWANDEN	NAG 5-2352	4522
11	UNIV MD-COLLEGE PARK	R OLIVERSEN	HQ	S M WHITE	NAG 5-2364	4525
11	UNIV MD-COLLEGE PARK	H C BRINTON	HQ	M F A'HEARN	NAGW 902	4529
11	UNIV MD-COLLEGE PARK	J H RAHE	HQ	M F AHEARN	NAGW 1886	4541
11	UNIV MD-COLLEGE PARK	J T BERGSTRALH	HQ	R J KHANNA	NAGW 2346	4551
11	UNIV MD-COLLEGE PARK	G S KUTTER	HQ	A S WILSON	NAGW 2689	4556
11	UNIV MD-COLLEGE PARK	J A KAYE	HQ	R D HUDSON	NAGW 2696	4557
11	UNIV MD-COLLEGE PARK	W L QUAIDE	HQ	M F A'HEARN	NAGW 2952	4565
11	UNIV MD-COLLEGE PARK	H C BRINTON	HQ	M A'HEARN	NAGW 3178	4569
11	UNIV MD-COLLEGE PARK	G C BRINTON	HQ	A W GROSSMAN	NAGW 3309	4574
11	UNIV MD-COLLEGE PARK	R V STACHNIK	HQ	J RICHARD	NAGW 3640	4581

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11	UNIV MD-COLLEGE PARK	G FISHMAN	MSFC	R SAGDEEV	NCC 8-25	4606
11	UNIV MD-COLLEGE PARK	G SOFFAN	GSFC	A S WILSON	NGT 00-050-764	4619
11	UNIV MD-COLLEGE PARK	J ALEXANDER	HQ	R A BELL	NGT 00-050-808	4620
11	UNIV MD-COLLEGE PARK	M BURRELL	GSFC	R MUSHOTZKY	NGT 00-051-096	4625
11	BOSTON UNIV	C D LAUGHLIN	ARC	A P LANE	NAG 2-747	4640
11	BOSTON UNIV	J NORRIS	GSFC	A P MARSCHER	NAG 5-1566	4645
11	BOSTON UNIV	R PETRE	GSFC	A P MARSCHER	NAG 5-1943	4647
11	BOSTON UNIV	D WEST	GSFC	D P CLEMENS	NAG 5-1997	4648
11	BOSTON UNIV	J P NORRIS	GSFC	J M JACKSON	NAG 5-2028	4649
11	BOSTON UNIV	D WEST	GSFC	S CHAKRABARTI	NAG 5-2260	4651
11	BOSTON UNIV	L J KALUZIENSKI	HQ	A P MARSCHER	NAGW 1608	4652
11	BOSTON UNIV	R V STACHNIK	HQ	S CHAKRABARTI	NAGW 3059	4660
11	BOSTON UNIV	F C OWENS	HQ	A P MARCHER	NGT 00-050-314	4664
11	C-HOLY CROS	N WHITE	GSFC	R ROSS	NAG 5-2261	4672
11	HARVARD UNIV	D K WEST	GSFC	R P KIRSHNER	NAG 5-841	4683
11	HARVARD UNIV	R PETRE	GSFC	J E GRINDLAY	NAG 5-1624	4685
11	HARVARD UNIV	R PETRE	GSFC	M BIRKINSHAW	NAG 5-1648	4686
11	HARVARD UNIV	J P NORRIS	GSFC	J E GRINDLAY	NAG 5-1690	4687
11	HARVARD UNIV	R PETRE	GSFC	M BIRKINSHAW	NAG 5-1895	4689
11	HARVARD UNIV	J NORRIS	GSFC	R NARAYAN	NAG 5-1904	4690
11	HARVARD UNIV	J P NORRIS	GSFC	P THADDEUS	NAG 5-2076	4691
11	HARVARD UNIV	J P NORRIS	GSFC	R NARAYAN	NAG 5-2077	4692
11	HARVARD UNIV	J P NORRIS	GSFC	J E GRINDLAY	NAG 5-2243	4693
11	HARVARD UNIV	D WEST	GSFC	R P KIRSHNER	NAG 5-2305	4695
11	HARVARD UNIV	L J KALUZIENSKI	HQ	J GRINDLAY	NAGW 624	4697
11	HARVARD UNIV	J D RUMMEL	HQ	P HOROWITZ	NAGW 2872	4711
11	HARVARD UNIV	G R RIEGLER	HQ	J GRINDLAY	NAGW 3280	4714
11	HARVARD UNIV	F C OWENS	HQ	I I SHAPIRO	NGT 00-050-663	4738
11	HARVARD UNIV	F C OWENS	HQ	M J GELLER	NGT 00-050-667	4739
11	HARVARD UNIV	F C OWENS	HQ	R KIRSHNER	NGT 00-050-802	4741
11	HARVARD UNIV	J ALEXANDER	HQ	M J GELLER	NGT 00-050-814	4742
11	HARVARD UNIV	F C OWENS	HQ	J P HOUGHRA	NGT 00-050-819	4743
11	HARVARD UNIV	F C OWENS	HQ	F K THIELEMANN	NGT 00-050-851	4744
11	HARVARD UNIV	J K ALEXANDER	HQ	J E GRINDLAY	NGT 00-050-994	4747
11	HARVARD UNIV	J K ALEXANDER	HQ	R P KIRSHNER	NGT 00-051-002	4749
11	HARVARD UNIV	J LYNCH	HQ	R KIRSHNER	NGT 00-051-081	4750
11	MASS INST OF TECH	C D LAUGHLIN	ARC	J L ELLIOT	NAG 2-754	4775
11	MASS INST OF TECH	J N CUZZI	ARC	J L ELLIOT	NAG 2-855	4777
11	MASS INST OF TECH	G BULLOCK	GSFC	A J LAZARUS	NAG 5-584	4802
11	MASS INST OF TECH	J MATHER	GSFC	R WEISS	NAG 5-1314	4806
11	MASS INST OF TECH	D WEST	GSFC	E BERTSCHINGER	NAG 5-1355	4808
11	MASS INST OF TECH	R PETRE	GSFC	W LEWIN	NAG 5-1441	4809
11	MASS INST OF TECH	R PETRE	GSFC	H BRADT	NAG 5-1498	4810
11	MASS INST OF TECH	J P NORRIS	GSFC	A P LIGHTMAN	NAG 5-1570	4811
11	MASS INST OF TECH	R PETRE	GSFC	A M LEVINE	NAG 5-1625	4813
11	MASS INST OF TECH	R PETRE	GSFC	G W CLARK	NAG 5-1656	4814
11	MASS INST OF TECH	R PETRE	GSFC	G R RICKER	NAG 5-1682	4815
11	MASS INST OF TECH	D WEST	GSFC	W H LEWIN	NAG 5-1723	4817
11	MASS INST OF TECH	R PETRE	GSFC	R A REMILLARD	NAG 5-1784	4818
11	MASS INST OF TECH	R PETRE	GSFC	W H LEWIN	NAG 5-1821	4819
11	MASS INST OF TECH	R PETRE	GSFC	W H LEWIN	NAG 5-1826	4820
11	MASS INST OF TECH	R PETRE	GSFC	C R CANIZARES	NAG 5-1865	4821
11	MASS INST OF TECH	R PETRE	GSFC	C R CANIZARES	NAG 5-1951	4827
11	MASS INST OF TECH	R PETRE	GSFC		NAG 5-1983	4828
11	MASS INST OF TECH	D WEST	GSFC	S RAPPAPORT	NAG 5-1993	4829
11	MASS INST OF TECH	J P NORRIS	GSFC	W H LEWIN	NAG 5-2030	4830
11	MASS INST OF TECH	J P NORRIS	GSFC	W H LEWIN	NAG 5-2046	4831
11	MASS INST OF TECH	J P NORRIS	GSFC	G R RICKER	NAG 5-2165	4832
11	MASS INST OF TECH	D E SMITH	GSFC	G H PETTENGILL	NAG 5-2185	4833
11	MASS INST OF TECH	R PETRE	GSFC	T H MARKERT	NAG 5-2230	4834

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11	MASS INST OF TECH	J VARGAS	MSFC	W H LEWIN	NAG 8-216	4837
11	MASS INST OF TECH	J VARGAS	MSFC	S RAPPAPORT	NAG 8-219	4838
11	MASS INST OF TECH	J VARGAS	MSFC	S RAPPAPORT	NAG 8-285	4839
11	MASS INST OF TECH	J VARGAS	MSFC	W H LEWIN	NAG 8-286	4840
11	MASS INST OF TECH	D HAVRISIK	MSFC	H BRADT	NAG 8-691	4842
11	MASS INST OF TECH	C PILCHER	HQ	B I BURKE	NAGW 1386	4870
11	MASS INST OF TECH	J H RAHE	HQ	R BINZEL	NAGW 1450	4871
11	MASS INST OF TECH	J H RAHE	HQ	J L ELLIOT	NAGW 1494	4872
11	MASS INST OF TECH	L J KALUZIENSKI	HQ	P C JOSS	NAGW 1545	4874
11	MASS INST OF TECH	L J KALUZIENSKI	HQ	G CLARK	NAGW 2003	4885
11	MASS INST OF TECH	L J KALUZIENSKI	HQ	G RICKER	NAGW 2089	4889
11	MASS INST OF TECH	J T BERGSTRALH	HQ	J I STEINFELD	NAGW 2387	4897
11	MASS INST OF TECH	L J CAROFF	HQ	E BERTSCHINGER	NAGW 2807	4904
11	MASS INST OF TECH	W L QUAIDE	HQ	J L ELLIOT	NAGW 2812	4905
11	MASS INST OF TECH	W L QUAIDE	HQ	T E DOWLING	NAGW 2956	4908
11	MASS INST OF TECH	G R RIEGLER	HQ	W LEWIN	NAGW 3234	4913
11	MASS INST OF TECH	H C BRINTON	HQ	R P BINZEL	NAGW 3292	4914
11	MASS INST OF TECH	H C BRINTON	HQ	J L ELLIOT	NAGW 3296	4915
11	MASS INST OF TECH	H C BRINTON	HQ	H B HAMMEL	NAGW 3310	4916
11	MASS INST OF TECH	R V STACHNIK	HQ	D P HUENEMOERDER	NAGW 3422	4917
11	MASS INST OF TECH	W DAVIS	GSFC	H BRADT	NAS 5-30612	4927
11	MASS INST OF TECH	C E WINKLER	MSFC	E B CALTON	NAS 8-36748	4936
11	MASS INST OF TECH	N B CUMINGS	MSFC	G RICKER	NAS 8-37716	4937
11	MASS INST OF TECH	C E WINKLER	MSFC	C R CANIZARES	NAS 8-38249	4938
11	MASS INST OF TECH	J LINTOTT	HQ	G R RICKER	NASW 4372	4942
11	MASS INST OF TECH	F C OWENS	HQ	J L ELLIOT	NGT 00-050-669	4966
11	TUFTS UNIV	R V STACHNIK	HQ	R A GONSALES	NAGW 3577	4993
11	UNIV MASS-AMHERST	D WEST	GSFC	R L SNELL	NAG 5-1288	5003
11	UNIV MASS-AMHERST	D WEST	GSFC	S E STROM	NAG 5-1354	5004
11	UNIV MASS-AMHERST	D WEST	GSFC	M WEINBERG	NAG 5-1999	5005
11	UNIV MASS-AMHERST	D WEST	GSFC	P F GOLDSMITH	NAG 5-2000	5006
11	UNIV MASS-AMHERST	J H RAHE	HQ	S E STROM	NAGW 1417	5011
11	UNIV MASS-AMHERST	J H RAHE	HQ	F P SCHLOERB	NAGW 1483	5012
11	UNIV MASS-AMHERST	J WEISS	HQ	S G KLEINMANN	NAGW 1909	5014
11	UNIV MASS-AMHERST	G S LEVY	HQ	S G KLEINMANN	NAGW 1935	5015
11	WELLESLEY COLLEGE	J N CUZZI	ARC	R G FRENCH	NAG 2-814	5036
11	WHEATON COLLEGE	D K WEST	GSFC	T BARKER	NAG 5-1292	5040
11	WILLIAMS COLLEGE	R PETRE	GSFC	K B KWITTER	NAG 5-1888	5041
11	WILLIAMS COLLEGE	L S LAPIANA	HQ	P J PASACHOFF	NAGW 3266	5042
11	WOODS HOLE OCEAN I	L E LASHER	ARC	C O BOWIN	NAG 2-768	5044
11	MICHIGAN TECH U	H C BRINTON	HQ	A BORYSOW	NAGW 2974	5091
11	U MICHIGAN-ANN ARBOR	L E LASHER	ARC	T DONAHUE	NAG 2-488	5117
11	U MICHIGAN-ANN ARBOR	L E LASHER	ARC	A NAGY	NAG 2-491	5118
11	U MICHIGAN-ANN ARBOR	L E LASHER	ARC	L H BRACE	NAG 2-644	5121
11	U MICHIGAN-ANN ARBOR	F M CURREN	LERC	A D GALLIMORE	NAG 3-1504	5132
11	U MICHIGAN-ANN ARBOR	D WEST	GSFC	T J CLARKE	NAG 5-1030	5137
11	U MICHIGAN-ANN ARBOR	D WEST	GSFC	M COMBI	NAG 5-1333	5138
11	U MICHIGAN-ANN ARBOR	D WEST	GSFC	C R COWLEY	NAG 5-1419	5139
11	U MICHIGAN-ANN ARBOR	J NORRIS	GSFC	C W AKERLOF	NAG 5-1591	5143
11	U MICHIGAN-ANN ARBOR	R PETRE	GSFC	J N BREGMAN	NAG 5-1658	5145
11	U MICHIGAN-ANN ARBOR	R PETRE	GSFC	H D ALLER	NAG 5-1820	5148
11	U MICHIGAN-ANN ARBOR	R PETRE	GSFC	J N BREGMAN	NAG 5-1955	5149
11	U MICHIGAN-ANN ARBOR	J P NORRIS	GSFC	M FATUZZO	NAG 5-2071	5150
11	U MICHIGAN-ANN ARBOR	D WEST	GSFC	M R COMBI	NAG 5-2110	5151
11	U MICHIGAN-ANN ARBOR	J T BERGSTRALH	HQ	T I GOMBOSI	NAGW 1366	5165
11	U MICHIGAN-ANN ARBOR	J T BERGSTRALH	HQ	J T CLARKE	NAGW 1766	5170
11	U MICHIGAN-ANN ARBOR	J T BERGSTRALH	HQ	S ATREYA	NAGW 1771	5171
11	U MICHIGAN-ANN ARBOR	J BERGSTRALH	HQ	M R COMBI	NAGW 1907	5173
11	U MICHIGAN-ANN ARBOR	J H RAHE	HQ	M R COMBI	NAGW 1908	5174
11	U MICHIGAN-ANN ARBOR	J BERGSTRALH	HQ	M COMBI	NAGW 1946	5175

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11	U MICHIGAN-ANN ARBOR	G S KUTTER	HQ	J N BREGMAN	NAGW 2135	5181
11	U MICHIGAN-ANN ARBOR	J BERGSTRALH	HQ	T DONAHUE	NAGW 2207	5185
11	U MICHIGAN-ANN ARBOR	G S KUTTER	HQ	A E EVRARD	NAGW 2367	5187
11	U MICHIGAN-ANN ARBOR	L J CAROFF	HQ	F C ADAMS	NAGW 2802	5193
11	U MICHIGAN-ANN ARBOR	J ALEXANDER	HQ	J N BREGMAN	NGT 00-050-901	5237
11	WAYNE ST U	F G HALL	GSFC	N S GOEL	NAG 5-2098	5256
11	U MINN-MNPLS-ST PAUL	L C HAUGHNEY	ARC	R D GEHRZ	NAG 2-606	5273
11	U MINN-MNPLS-ST PAUL	D WEST	GSFC	K DAVIDSON	NAG 5-1447	5280
11	U MINN-MNPLS-ST PAUL	D WEST	GSFC	R M HUMPHREYS	NAG 5-1766	5281
11	U MINN-MNPLS-ST PAUL	D WEST	GSFC	E D SKILLMAN	NAG 5-1768	5282
11	U MINN-MNPLS-ST PAUL	L S WALTER	GSFC	H H CHENG	NAG 5-1846	5283
11	U MINN-MNPLS-ST PAUL	M E NEIN	MSFC	W L GARRARD	NAG 8-855	5286
11	U MINN-MNPLS-ST PAUL	J H RAHE	HQ	R G GEHRZ	NAGW 2324	5297
11	U MINN-MNPLS-ST PAUL	M M MELLOTT	HQ	R L LYSAK	NAGW 2653	5300
11	U MINN-MNPLS-ST PAUL	G R RIEGLER	HQ	E D SKILLMAN	NAGW 3189	5305
11	U MINN-MNPLS-ST PAUL	B KLEIN	GSFC	K GEOTZ	NAS 5-31219	5310
11	U MISSOURI-ST LOUIS	W L QUAIDE	HQ	J J O'BRIEN	NAGW 2474	5397
11	WASHINGTON UNIV	R E STREITMATTER	GSFC	W R BINNS	NAG 5-1422	5403
11	WASHINGTON UNIV	W L QUAIDE	HQ	B T FEGLEY	NAGW 2861	5425
11	WASHINGTON UNIV	W L QUAIDE	HQ	B T FEGLEY	NAGW 2867	5426
11	WASHINGTON UNIV	R STACHNIK	HQ	C M WILL	NAGW 2909	5428
11	MONTANA ST U	R PETRE	GSFC	S TSURUTA	NAG 5-1830	5456
11	MONTANA ST U	J VARGAS	MSFC	S TSURUTA	NAG 8-230	5457
11	MONTANA ST U	J VARGAS	MSFC	S TSURUTA	NAG 8-289	5458
11	MONTANA ST U	G S KUTTER	HQ	S TSURUTA	NAGW 2208	5460
11	MONTANA ST U	R STACHNIK	HQ	L A LINDBLOM	NAGW 2951	5462
11	U NEBRASKA-LINCOLN	J T BERGSTRALH	HQ	J A SAMSON	NAGW 1751	5489
11	U NEBRASKA-LINCOLN	G S KUTTER	HQ	N R SIMON	NAGW 2395	5490
11	U NEVADA-LAS VEGAS	D VITAGLIANO	GSFC	D WEISTROP	NAS 5-31231	5506
11	UNIV NEVADA-RENO	D WEST	GSFC	M RODRIGUE	NAG 5-2136	5510
11	DARTMOUTH COLLEGE	D WEST	GSFC	J R THORSTENSEN	NAG 5-1410	5520
11	DARTMOUTH COLLEGE	R PETRE	GSFC	R A FESEN	NAG 5-2138	5522
11	DARTMOUTH COLLEGE	R PETRE	GSFC	J R THORSTENSEN	NAG 5-2164	5523
11	DARTMOUTH COLLEGE	R OLIVERSEN	GSFC	R A FESEN	NAG 5-2314	5525
11	DARTMOUTH COLLEGE	D WEST	GSFC	R A FESEN	NAG 5-2337	5526
11	DARTMOUTH COLLEGE	F C OWENS	HQ	G WEGNER	NGT 00-050-810	5540
11	UNIV NEW HAMP-DURHAM	J P NORRIS	GSFC	W T VESTRAND	NAG 5-1561	5553
11	UNIV NEW HAMP-DURHAM	J P NORRIS	GSFC	D J FORREST	NAG 5-1562	5554
11	UNIV NEW HAMP-DURHAM	R PETRE	GSFC	A CONNORS	NAG 5-1753	5555
11	UNIV NEW HAMP-DURHAM	J P NORRIS	GSFC	J M RYAN	NAG 5-2172	5556
11	UNIV NEW HAMP-DURHAM	J NORRIS	GSFC	J M RYAN	NAG 5-2350	5559
11	UNIV NEW HAMP-DURHAM	L S LAPIANA	HQ	E L CHUPP	NAGW 3175	5588
11	UNIV NEW HAMP-DURHAM	W J WAGNER	HQ	W VESTRAND	NAGW 3538	5594
11	UNIV NEW HAMP-DURHAM	J NORRIS	GSFC	J RYAN	NAS 5-26645	5598
11	UNIV NEW HAMP-DURHAM	R OLIVERSEN	GSFC	W T VESTRAND	NAS 5-32062	5601
11	PRINCETON UNIV	J G MARVIN	ARC	S M BOGDONOFF	NAG 2-718	5625
11	PRINCETON UNIV	C D LAUGHLIN	ARC	G NOVAK	NAG 2-746	5627
11	PRINCETON UNIV	J MATHER	GSFC	D T WILKINSON	NAG 5-1310	5642
11	PRINCETON UNIV	J P NORRIS	GSFC	J H TAYLOR	NAG 5-1453	5643
11	PRINCETON UNIV	S SOBIESKI	GSFC	E J GROTH	NAG 5-1629	5646
11	PRINCETON UNIV	S R HEAP	GSFC	E B JENKINS	NAG 5-1714	5647
11	PRINCETON UNIV	D WEST	GSFC	E L FLTZPATRICK	NAG 5-1769	5648
11	PRINCETON UNIV	J P NORRIS	GSFC	R WIJERS	NAG 5-1816	5649
11	PRINCETON UNIV	J P NORRIS	GSFC	M TAVANI	NAG 5-1854	5650
11	PRINCETON UNIV	R PETRE	GSFC	R A DALY	NAG 5-1875	5651
11	PRINCETON UNIV	J NORRIS	GSFC	B PACZYNSKI	NAG 5-1901	5652
11	PRINCETON UNIV	J P NORRIS	GSFC	M TAVANI	NAG 5-2234	5654
11	PRINCETON UNIV	G S LEVY	HQ	B T DRAINE	NAGW 1973	5661
11	PRINCETON UNIV	G S KUTTER	HQ	J E GUNN	NAGW 2118	5662
11	PRINCETON UNIV	G S KUTTER	HQ	E L TURNER	NAGW 2173	5663

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11	PRINCETON UNIV	G S KUTTER	HQ	J GOODMAN	NAGW 2419	5664
11	PRINCETON UNIV	G S KUTTER	HQ	J P OSTRICKER	NAGW 2448	5665
11	PRINCETON UNIV	J K ALEXANDER	HQ	D T WILKINSON	NAGW 2801	5667
11	PRINCETON UNIV	L LAPIANA	HQ	P E TURNER	NAGW 3233	5670
11	PRINCETON UNIV	D VITAGLINO	GSFC	E JENKINS	NAS 5-30110	5674
11	RUTGERS ST U-N BRNSK	I D BROWNE	JSC	G F HERZOG	NAG 9-26	5693
11	RUTGERS ST U-PISCTWY	R PETRE	GSFC	T A MATILSKY	NAG 5-1750	5707
11	NEW MEX INST MINING	D WEST	GSFC	D J RAYMOND	NAG 5-767	5722
11	NEW MEX INST MINING	R PETRE	GSFC	J EILEK	NAG 5-1848	5723
11	NEW MEX INST MINING	L J KALUZIENSKI	HQ	J A EILEK	NAGW 1591	5727
11	NEW MEX INST MINING	F C WITTEBORN	ARC	J A EILEK	NCC 2-364	5730
11	NEW MEX ST U-LAS CR	J P NORRIS	GSFC	B J MCNAMARA	NAG 5-1516	5734
11	NEW MEX ST U-LAS CR	R PETRE	GSFC	J O BURNS	NAG 5-1737	5735
11	NEW MEX ST U-LAS CR	R PETRE	GSFC	J O BURNS	NAG 5-1819	5736
11	NEW MEX ST U-LAS CR	R PETRE	GSFC	R A WALTERBOS	NAG 5-1924	5737
11	NEW MEX ST U-LAS CR	R PETRE	GSFC	B J MCNAMARA	NAG 5-2091	5739
11	NEW MEX ST U-LAS CR	M E NEIN	MSFC	J O BURNS	NAG 8-895	5741
11	NEW MEX ST U-LAS CR	D THOMPSON	JSC	J O BURNS	NAG 9-396	5744
11	NEW MEX ST U-LAS CR	M M MELLOTT	HQ	R L GOLDEN	NAGW 110	5747
11	NEW MEX ST U-LAS CR	J T BERGSTRALH	HQ	R F BEEBE	NAGW 1506	5749
11	NEW MEX ST U-LAS CR	J RAHE	HQ	R REEBE	NAGW 1802	5751
11	NEW MEX ST U-LAS CR	G S KUTTER	HQ	N A DEVEREUX	NAGW 2630	5753
11	NEW MEX ST U-LAS CR	G R RIEGLER	HQ	J BURNS	NAGW 3152	5755
11	NEW MEX ST U-LAS CR	L LAPIANA	HQ	B J MCNAMARA	NAGW 3236	5756
11	NEW MEX ST U-LAS CR	L S LAPIANA	HQ	P J BURNS	NAGW 3264	5757
11	NEW MEX ST U-LAS CR	A BLUM	GSFC	F KUELLMER	NAS 5-30749	5760
11	NEW MEX ST U-LAS CR	R E STREITMATTER	GSFC	R L GOLDEN	NAS 5-31852	5764
11	NEW MEX ST U-LAS CR	H C BRINTON	HQ	R F BEEBE	NGL32-3001	5766
11	UNIV NEW MEX	D WEST	GSFC	N DURIC	NAG 5-1239	5779
11	UNIV NEW MEX	R PETRE	GSFC	N DURIC	NAG 5-1814	5780
11	UNIV NEW MEX	R PETRE	GSFC	N DURIC	NAG 5-1923	5783
11	UNIV NEW MEX	M E NEIN	MSFC	K M CHUA	NAG 8-894	5789
11	CITY COL OF NEW YORK	P CASSEN	ARC	C YUAN	NCA 2-695	5817
11	COLUMBIA UNIV	R PETRE	GSFC	D J HELFAND	NAG 5-1557	5842
11	COLUMBIA UNIV	R PETRE	GSFC	J PATTERSON	NAG 5-1598	5843
11	COLUMBIA UNIV	R PETRE	GSFC	J P HALPERN	NAG 5-1606	5844
11	COLUMBIA UNIV	D WEST	GSFC	R M RICH	NAG 5-1808	5845
11	COLUMBIA UNIV	R PETRE	GSFC	D J HELEAND	NAG 5-1912	5846
11	COLUMBIA UNIV	R PETRE	GSFC	J P HALPERN	NAG 5-1935	5847
11	COLUMBIA UNIV	R PETRE	GSFC	J H VAN GORKOM	NAG 5-1954	5850
11	COLUMBIA UNIV	R PETRE	GSFC	J O PATTERSON	NAG 5-1958	5851
11	COLUMBIA UNIV	J P NORRIS	GSFC	M A RUDERMAN	NAG 5-2016	5853
11	COLUMBIA UNIV	J P NORRIS	GSFC	J SHAHAM	NAG 5-2017	5854
11	COLUMBIA UNIV	J P NORRIS	GSFC	J P HALPERN	NAG 5-2051	5855
11	COLUMBIA UNIV	R PETRE	GSFC	T T HAMILTON	NAG 5-2079	5857
11	COLUMBIA UNIV	D WEST	GSFC	J P HALPERN	NAG 5-2092	5858
11	COLUMBIA UNIV	J NORRIS	GSFC	P KAARET	NAG 5-2235	5859
11	COLUMBIA UNIV	N WHITE	GSFC	D HELFAND	NAG 5-2272	5860
11	COLUMBIA UNIV	R OLIVERSEN	GSFC	D C MARTIN	NAG 5-2309	5861
11	COLUMBIA UNIV	L J KALUZIENSKI	HQ	J SHAHAM	NAGW 1618	5870
11	COLUMBIA UNIV	L J KALUZIENSKI	HQ	E APRILE	NAGW 2013	5876
11	COLUMBIA UNIV	G S KUTTER	HQ	R M RICH	NAGW 2479	5880
11	COLUMBIA UNIV	G S KUTTER	HQ	D J HELFAND	NAGW 2507	5881
11	COLUMBIA UNIV	G S KUTTER	HQ	J O PATTERSON	NAGW 2565	5882
11	COLUMBIA UNIV	G S KUTTER	HQ	T T HAMILTON	NAGW 2566	5883
11	COLUMBIA UNIV	L J KALUZIENSKI	HQ	J APPELGATE	NAGW 3075	5890
11	COLUMBIA UNIV	R OLIVERSEN	GSFC	D HELFOND	NAS 5-32063	5895
11	COLUMBIA UNIV	B CARLSON	GSFC	M A RUDERMAN	NCC 5-37	5900
11	COLUMBIA UNIV	F C OWENS	HQ	C MARTIN	NGT 00-050-777	5913
11	CORNELL UNIV	F O HUCK	LARC	S W SQUYRES	NAG 1-1293	5920

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11	CORNELL UNIV	C D LAUGHLIN	ARC	T HERTER	NAG 2-207	5925
11	CORNELL UNIV	C R MCCREIGHT	ARC	T L HERTER	NAG 2-660	5929
11	CORNELL UNIV	L F LASHER	ARC	P J GIERASCH	NAG 2-680	5931
11	CORNELL UNIV	D H BROCKER	ARC	M M DAVIS	NAG 2-696	5932
11	CORNELL UNIV	D H BROCKER	ARC	J M CORDES	NAG 2-697	5933
11	CORNELL UNIV	C D LAUGHLIN	ARC	G STACEY	NAG 2-800	5935
11	CORNELL UNIV	J P NORRIS	GSFC	J M CORDES	NAG 5-1452	5954
11	CORNELL UNIV	J P NORRIS	GSFC	I M WASSERMAN	NAG 5-1563	5956
11	CORNELL UNIV	D WEST	GSFC	F F SALPETER	NAG 5-1669	5957
11	CORNELL UNIV	J P NORRIS	GSFC	T J LOREDO	NAG 5-1758	5958
11	CORNELL UNIV	D WEST	GSFC	B M LEWIS	NAG 5-2120	5960
11	CORNELL UNIV	L J KALUZIENSKI	HQ	E E SALPETER	NAGW 666	5966
11	CORNELL UNIV	F C GILLETT	HQ	S H BAUER	NAGW 1262	5968
11	CORNELL UNIV	K FOX	HQ	W R THOMPSON	NAGW 1444	5970
11	CORNELL UNIV	J T BERGSTRALH	HQ	P GIERASCH	NAGW 1997	5973
11	CORNELL UNIV	G S KUTTER	HQ	D F CHERNOFF	NAGW 2224	5978
11	CORNELL UNIV	T A MAXWELL	HQ	S W SQUYRES	NAGW 2225	5979
11	CORNELL UNIV	G S KUTTER	HQ	S L SHAPIRO	NAGW 2364	5982
11	CORNELL UNIV	M D BICAY	HQ	J R HOUCK	NAGW 2551	5985
11	CORNELL UNIV	L J CAROFF	HQ	A J SIEVERS	NAGW 2768	5988
11	CORNELL UNIV	L J CAROFF	HQ	J R HOUCK	NAGW 2870	5989
11	CORNELL UNIV	H C BRINTON	HQ	J VEYERKA	NAGW 3591	5999
11	CORNELL UNIV	J N CUZZI	ARC	P D NICHOLSON	NCA 2-640	6006
11	CORNELL UNIV	J N CUZZI	ARC	P D NICHOLSON	NCA 2-832	6008
11	CORNELL UNIV	F C OWENS	HQ	P J GIERASCH	NGT 00-050-846	6018
11	CORNELL UNIV	F C OWENS	HQ	S V BECKWITH	NGT 00-050-847	6019
11	CORNELL UNIV	F C OWENS	HQ	G FIELD	NGT 00-050-850	6020
11	NEW YORK UNIV	F C GILLETT	HQ	A E GLASSGOLD	NAGW 630	6041
11	RENSSELAER POLY INST	D WEST	GSFC	M L KUTNER	NAG 5-1631	6068
11	RENSSELAER POLY INST	L J CAROFF	HQ	C M LEUNG	NAGW 2817	6075
11	RENSSELAER POLY INST	L J CAROFF	HQ	W G ROBERGE	NAGW 3001	6076
11	RENSSELAER POLY INST	G R RIEGLER	HQ	D WHITTET	NAGW 3144	6077
11	ST U OF NY-ALBANY	L E LASHER	ARC	J L FOX	NAG 2-523	6103
11	ST U OF NY-ALBANY	D C CARTER	MSFC	W M GIBSON	NAG 8-926	6110
11	ST U NY-STONY BROOK	D WEST	GSFC	A YAHIL	NAG 5-1228	6155
11	ST U NY-STONY BROOK	D WEST	GSFC	P M SOLOMON	NAG 5-1231	6156
11	ST U NY-STONY BROOK	R PETRE	GSFC	F M WALTER	NAG 5-1594	6157
11	ST U NY-STONY BROOK	D WEST	GSFC	F M WALTER	NAG 5-1663	6158
11	ST U NY-STONY BROOK	A SMITH	GSFC	F M WALTER	NAG 5-1862	6160
11	ST U NY-STONY BROOK	R PETRE	GSFC	F M WALTER	NAG 5-1874	6161
11	ST U NY-STONY BROOK	D WEST	GSFC	F M WALTER	NAG 5-1962	6162
11	ST U NY-STONY BROOK	D WEST	GSFC	P M SOLOMON	NAG 5-2002	6163
11	ST U NY-STONY BROOK	M E NEIN	MSFC	R F KNACKE	NAG 8-860	6164
11	ST U NY-STONY BROOK	J BERGSTRALH	HQ	J FOX	NAGW 665	6165
11	ST U NY-STONY BROOK	J T BERGSTRALH	HQ	P VARANASI	NAGW 1894	6170
11	ST U NY-STONY BROOK	J RAHE	HQ	R KNACKE	NAGW 2194	6172
11	ST U NY-STONY BROOK	W L QUAIDE	HQ	R KNACKE	NAGW 2796	6176
11	ST U NY-STONY BROOK	W L QUAIDE	HQ	J L FOX	NAGW 2958	6177
11	ST U OF NY-OSWEGO	D WEST	GSFC	S W ROBY	NAG 5-1404	6194
11	SYRACUSE UNIV	L S LAPIANA	HQ	P G VIDALI	NAGW 3256	6206
11	UNIV ROCHESTER	J H GOEBEL	ARC	W J FORREST	NAG 2-117	6211
11	UNIV ROCHESTER	M BICAY	HQ	J L PIPHER	NAGW 2393	6214
11	UNIV ROCHESTER	G S KUTTER	HQ	J H THOMAS	NAGW 2444	6215
11	UNIV ROCHESTER	J T LYNCH	HQ	J PIPHER	NGT 00-050-817	6220
11	DUKE UNIV	F C GILLETT	HQ	E HERBST	NAGW 1259	6234
11	NC ST U.-RALEIGH	R PETRE	GSFC	S P REYNOLDS	NAG 5-2212	6293
11	NC ST U.-RALEIGH	L J KALUZIENSKI	HQ	J M BLONDIN	NAGW 3658	6304
11	UNIV NC-ASHVILLE	J P NORRIS	GSFC	J K DAUGHERTY	NAG 5-2023	6335
11	UNIV NC-CHAPEL HILL	D WEST	GSFC	S C BALACHANDRAN	NAG 5-2116	6338
11	UNIV NC-CHAPEL HILL	J T BERGSTRALH	HQ	R E MILLER	NAGW 1576	6341



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11	UNIV NC-CHAPEL HILL	L J KALUZIENSKI	HQ	J M BLONDIN	NAGW 2934	6343
11	CASE WESTERN RES U	J P NORRIS	GSFC	G M FRYE	NAG 5-1451	6402
11	DENISON UNIV	J T BERGSTALH	HQ	M E MICKELSON	NAGW 1765	6540
11	OHIO ST U	D WEST	GSFC	A K PRADHAM	NAG 5-1644	6588
11	OHIO ST U	D WEST	GSFC	F W HAMANN	NAG 5-1645	6589
11	OHIO ST U	D WEST	GSFC	B M PETERSON	NAG 5-1824	6590
11	OHIO ST U	D WEST	GSFC	VADER	NAG 5-1992	6591
11	OHIO ST U	R PETRE	GSFC	R M WAGNER	NAG 5-2192	6593
11	OHIO ST U	J P NORRIS	GSFC	R M WAGNER	NAG 5-2355	6594
11	OHIO ST U	D P HUENEMOERDER	HQ	R J SCHERRER	NAGW 2589	6602
11	OHIO ST U	J D RUMMEL	HQ	R S DIXON	NAGW 2786	6607
11	OHIO ST U	L J CAROFF	HQ	E HERBST	NAGW 2906	6608
11	OHIO ST U	J D RUMMEL	HQ	C A KLEIN	NAGW 3668	6610
11	UNIV CINCINNATI	D WEST	GSFC	M L SLTKO	NAG 5-1770	6706
11	UNIV CINCINNATI	L LAPIANA	HQ	M L SITKO	NAGW 3230	6709
11	UNIV TOLEDO	D WEST	GSFC	B W BOPP	NAG 5-954	6757
11	UNIV TOLEDO	J BERGSTALH	HQ	P B JAMES	NAGW 2337	6758
11	UNIV TOLEDO	D HUENEMOERDER	HQ	S R FEDERMAN	NAGW 2457	6759
11	UNIV TOLEDO	L J CAROFF	HQ	A N WITT	NAGW 2794	6760
11	UNIV TOLEDO	G R RIEGLER	HQ	A WITT	NAGW 3168	6761
11	UNIV TOLEDO	L LAPIANA	HQ	A N WITT	NAGW 3240	6762
11	UNIV TOLEDO	E ERICKSON	ARC	L S ANDERSON	NCA 2-645	6763
11	UNIV OKLAHOMA-NORMAN	R V STACHNIK	HQ	D R BRANCH	NAGW 2999	6796
11	UNIV OKLAHOMA-NORMAN	L LAPIANA	HQ	P D BRANCH	NAGW 3232	6798
11	OREGON ST U	W QUAIDE	HQ	J R BARNES	NAGW 2445	6820
11	SOUTHERN OREGON ST C	F SIX	MSFC	J D'ALLURA	NAG 8-222	6858
11	UNIV OREGON-EUGENE	R PETRE	GSFC	G D BOTHUN	NAG 5-2086	6863
11	DREXEL UNIV	D P HUENEMOERDER	HQ	S L MCMILLAN	NAGW 2559	6912
11	FRANKLIN-MARSHALL C	F C WITTEBORN	ARC	D E BACKMAN	NCC 2-745	6918
11	LEHIGH UNIV	D WEST	GSFC	G E MCCLUSKEY	NAG 5-2100	6922
11	LEHIGH UNIV	C C CHACKERIAN	ARC	R LOVEJOY	NCA 2-673	6927
11	LEHIGH UNIV	Y KONDO	GSFC	G E MCCLUSKEY	NSG-5386	6929
11	PA ST U.-UNIV. PARK	L J EARLY	GSFC	G P GARMIE	NAG 5-100	6978
11	PA ST U.-UNIV. PARK	Y KONDO	GSFC	L W RAMSEY	NAG 5-563	6979
11	PA ST U.-UNIV. PARK	R PETRE	GSFC	J A NOUSEK	NAG 5-1482	6982
11	PA ST U.-UNIV. PARK	R PETRE	GSFC	D N BURROWS	NAG 5-1535	6983
11	PA ST U.-UNIV. PARK	R PETRE	GSFC	D FEIGELSON	NAG 5-1678	6984
11	PA ST U.-UNIV. PARK	R PETRE	GSFC	J A NOUSEK	NAG 5-1693	6985
11	PA ST U.-UNIV. PARK	D WEST	GSFC	R A WADE	NAG 5-1698	6986
11	PA ST U.-UNIV. PARK	R PETRE	GSFC	G P GARMIRE	NAG 5-1708	6987
11	PA ST U.-UNIV. PARK	R PETRE	GSFC	D P HUENEMOERDER	NAG 5-1751	6988
11	PA ST U.-UNIV. PARK	R PETRE	GSFC	F A DOMINIC CORDOVA	NAG 5-1763	6989
11	PA ST U.-UNIV. PARK	R PETRE	GSFC	D N BURROWS	NAG 5-1786	6990
11	PA ST U.-UNIV. PARK	D WEST	GSFC	L W RAMSEY	NAG 5-1831	6992
11	PA ST U.-UNIV. PARK	R PETRE	GSFC	L W RAMSEY	NAG 5-1898	6993
11	PA ST U.-UNIV. PARK	R PETRE	GSFC	F A CORDOVA	NAG 5-1899	6994
11	PA ST U.-UNIV. PARK	D WEST	GSFC	F A CORDOVA	NAG 5-1946	6996
11	PA ST U.-UNIV. PARK	R PETRE	GSFC	G P GARMIRE	NAG 5-1950	6997
11	PA ST U.-UNIV. PARK	R PETRE	GSFC	F D FEIGELSON	NAG 5-1959	6998
11	PA ST U.-UNIV. PARK	D WEST	GSFC	J E NEFF	NAG 5-1968	6999
11	PA ST U.-UNIV. PARK	D WEST	GSFC	J E NEFF	NAG 5-2118	7000
11	PA ST U.-UNIV. PARK	D WEST	GSFC	WADE	NAG 5-2125	7001
11	PA ST U.-UNIV. PARK	R PETRE	GSFC	R A WADE	NAG 5-2144	7002
11	PA ST U.-UNIV. PARK	R PETRE	GSFC	R H CORBET	NAG 5-2214	7003
11	PA ST U.-UNIV. PARK	J VARGAS	MSFC	R H CORBET	NAG 8-186	7009
11	PA ST U.-UNIV. PARK	D HAVRISIK	MSFC	J A NOUSEK	NAG 8-758	7012
11	PA ST U.-UNIV. PARK	L J KALUZIENSKI	HQ	P I MESZAROS	NAGW 1522	7023
11	PA ST U.-UNIV. PARK	J R WEISS	HQ	J NOUSEK	NAGW 1713	7024
11	PA ST U.-UNIV. PARK	J WEISS	HQ	F A CORDOVA	NAGW 1920	7026
11	PA ST U.-UNIV. PARK	G S KUTTER	HQ	E D FEIGELSON	NAGW 2120	7027

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11	PA ST U.-UNIV. PARK	G S KUTTER	HQ	J E NEFF	NAGW 2603	7030
11	PA ST U.-UNIV. PARK	L S LAPIANA	HQ	D W WEEDMAN	NAGW 3136	7035
11	PA ST U.-UNIV. PARK	G R RIEGLER	HQ	R CIARDULLO	NAGW 3159	7036
11	PA ST U.-UNIV. PARK	G R RIEGLER	HQ	R WADE	NAGW 3171	7037
11	PA ST U.-UNIV. PARK	F GIOVANE	HQ	F A CORDOVA	NAGW 3211	7038
11	PA ST U.-UNIV. PARK	H C BRINTON	HQ	R F KNACKE	NAGW 3415	7043
11	PA ST U.-UNIV. PARK	R V STACHNIK	HQ	J C CHARLTON	NAGW 3571	7044
11	PA ST U.-UNIV. PARK	N WHITE	GSFC	J NOUSEK	NAS 5-31827	7047
11	PA ST U.-UNIV. PARK	R OLIVERSEN	GSFC	J A NOUSEK	NAS 5-32074	7048
11	PA ST U.-UNIV. PARK	N B CUMINGS	MSFC	G P GARMARE	NAS 8-38252	7049
11	PA ST U.-UNIV. PARK	F C OWENS	HQ	G P GARMIRE	NGT 00-050-309	7063
11	PA ST U.-UNIV. PARK	F C OWENS	HQ	G P GARMIRE	NGT 00-050-803	7070
11	PA ST U.-UNIV. PARK	F C OWENS	HQ	E D FEIGELSON	NGT 00-070-204	7083
11	SUSQUEHANNA UNIV	N F SIX	MSFC	R KOZLOWSKI	NAG 8-199	7090
11	SWARTHMORE COLLEGE	D K WEST	GSFC	J E GAUSTAD	NAG 5-1152	7091
11	UNIV PENNSYLVANIA	D K WEST	GSFC	R H KOCH	NAG 5-1168	7092
11	UNIV PENNSYLVANIA	M J MUMMA	GSFC	R KOCH	NAG 5-1473	7093
11	UNIV PITTSBURGH	D WEST	GSFC	D A TURNSHEK	NAG 5-1421	7109
11	UNIV PITTSBURGH	R PETRE	GSFC	C HAZARD	NAG 5-1717	7110
11	UNIV PITTSBURGH	D WEST	GSFC	D A TURNSHEK	NAG 5-1778	7111
11	UNIV PITTSBURGH	R PETRE	GSFC	D A TURNSHEK	NAG 5-1902	7112
11	UNIV PITTSBURGH	J H RAHE	HQ	J P WEFEL	NAGW 1270	7114
11	UNIV PITTSBURGH	J T BERGSTRALH	HQ	R JOHNSEN	NAGW 1764	7115
11	UNIV PITTSBURGH	R STACHNIK	HQ	R E LADBECK	NAGW 2977	7118
11	UNIV PITTSBURGH	L LAPIANA	HQ	P C HAZARD	NAGW 3231	7119
11	UNIV PITTSBURGH	L S LAPIANA	HQ	P D TURNSHEK	NAGW 3238	7120
11	UNIV PITTSBURGH	L LAPIANA	HQ	P R SCHULTE-LADBECK	NAGW 3239	7121
11	VILLANOVA UNIV	D WEST	GSFC	E M SION	NAG 5-343	7126
11	VILLANOVA UNIV	D WEST	GSFC	E F GUINAN	NAG 5-382	7127
11	VILLANOVA UNIV	D WEST	GSFC	C AMBRUSTER	NAG 5-980	7128
11	VILLANOVA UNIV	D WEST	GSFC	E M SION	NAG 5-1284	7129
11	VILLANOVA UNIV	R PETRE	GSFC	E F GUINAN	NAG 5-1662	7130
11	VILLANOVA UNIV	D WEST	GSFC	E F GUINAN	NAG 5-1703	7131
11	VILLANOVA UNIV	D WEST	GSFC	E M SION	NAG 5-1836	7132
11	VILLANOVA UNIV	D WEST	GSFC	E F GUINAN	NAG 5-2160	7133
11	VILLANOVA UNIV	R OLIVERSEN	GSFC	E SION	NAG 5-2278	7134
11	VILLANOVA UNIV	R OLIVERSEN	GSFC	C W AMBRUSTER	NAG 5-2279	7135
11	VILLANOVA UNIV	G R RIEGLER	HQ	E SION	NAGW 3726	7136
11	BROWN UNIV	D E SMITH	GSFC	J W HEAD	NAG 5-2183	7147
11	BROWN UNIV	J K ALEXANDER	HQ	P T TIMBIE	NAGW 2797	7163
11	BROWN UNIV	H C BRINTON	HQ	C PIETERS	NAGW 3756	7174
11	UNIV RHODE ISLAND	J A NUTH	HQ	A G CAMERON	NAGW 2584	7198
11	CITADEL MIL-C OF S C	D WEST	GSFC	S J ADOLMAN	NAG 5-1300	7208
11	CITADEL MIL-C OF S C	D WEST	GSFC	S J ADELMAN	NAG 5-1402	7209
11	CITADEL MIL-C OF S C	D S LECKRONE	GSFC	S J ADELMAN	NAG 5-1551	7210
11	CITADEL MIL-C OF S C	L S LAPIANA	HQ	S J ADELMAN	NAGW 3225	7211
11	CLEMSON UNIV-CLEMSON	J P NORRIS	GSFC	D H HARTMANN	NAG 5-1578	7221
11	CLEMSON UNIV-CLEMSON	R PETRE	GSFC	D H HARTMANN	NAG 5-1842	7222
11	UNIV SOUTH CAROLINA	R STACHNIK	HQ	A K DRUKER	NAGW 2510	7252
11	EAST TENNESSEE ST U	D WEST	GSFC		NAG 5-2130	7270
11	FISK UNIV	F SIX	MSFC	C MCGRUDER	NAG 8-218	7275
11	TENNESSEE ST U	D WEST	GSFC	J A EATON	NAG 5-1474	7289
11	TENNESSEE ST U	J L RANDALL	MSFC	M R BUSBY	NAG 8-111	7291
11	TENNESSEE TECH U	W T POWERS	MSFC	D C VENTRICE	NAG 8-206	7294
11	UNIV TENN-KNOXVILLE	J BERGSTRALH	HQ	K FOX	NAGW 2015	7314
11	UNIV TENN-KNOXVILLE	J BOYCE	HQ	H MCSWEEN	NAGW 3621	7319
11	VANDERBILT UNIV	D WEST	GSFC	D A WEINTRAUB	NAG 5-1754	7335
11	VANDERBILT UNIV	C R CHAPPELL	MSFC	A M STRAUSS	NAG 8-151	7337
11	RICE UNIV	L E LASHER	ARC	P A CLOUTIER	NAG 2-566	7398
11	RICE UNIV	D WEST	GSFC	R J DUFOUR	NAG 5-262	7399

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11	RICE UNIV	D WEST	GSFC	R A DUFOUR	NAG 5-1467	7402
11	RICE UNIV	J P NORRIS	GSFC	E P LIANG	NAG 5-1515	7404
11	RICE UNIV	J P NORRIS	GSFC	E P LIANG	NAG 5-1547	7405
11	RICE UNIV	S SOBIESKI	GSFC	C R O'DELL	NAG 5-1626	7406
11	RICE UNIV	J P NORRIS	GSFC	E P LIANG	NAG 5-2045	7407
11	RICE UNIV	C R CHAPPELL	MSFC	J W FREEMAN	NAG 8-146	7409
11	RICE UNIV	L KALUZIENSKI	HQ	R C HAYMES	NAGW 2256	7422
11	RICE UNIV	L S LAPIANA	HQ	R C HAYMES	NAGW 3248	7429
11	RICE UNIV	F C OWENS	HQ	F C MICHEL	NGT 00-050-569	7438
11	U TX-AUSTIN	C D LANGHLIN	ARC	P M HARVEY	NAG 2-67	7693
11	U TX-AUSTIN	C D LAUGHLIN	ARC	H L DINERSTEIN	NAG 2-372	7694
11	U TX-AUSTIN	L C HAUGHNEY	ARC	D T JAFFEE	NAG 2-419	7695
11	U TX-AUSTIN	L C HAUGHNEY	ARC	N J EVANS	NAG 2-420	7696
11	U TX-AUSTIN	C D LAUGHLIN	ARC	D F LESTER	NAG 2-748	7697
11	U TX-AUSTIN	S SOBIESKI	GSFC	W H JEFFERYS	NAG 5-1603	7704
11	U TX-AUSTIN	S SOBIESKI	GSFC	D L LAMBERT	NAG 5-1616	7705
11	U TX-AUSTIN	R PETRE	GSFC	B J WILLS	NAG 5-1700	7706
11	U TX-AUSTIN	R PETRE	GSFC	J H WOOD	NAG 5-1829	7707
11	U TX-AUSTIN	A SMITH	GSFC	L M TRAFTON	NAG 5-1855	7708
11	U TX-AUSTIN	D WEST	GSFC	J C WHEELER	NAG 5-2139	7713
11	U TX-AUSTIN	J H RAHE	HQ	H J SMITH	NAGW 1477	7736
11	U TX-AUSTIN	G C CLAYTON	HQ	P D HEMENWAY	NAGW 1537	7738
11	U TX-AUSTIN	G C CLAYTON	HQ	G A SHIELDS	NAGW 1807	7739
11	U TX-AUSTIN	J RAHE	HQ	A L COCHRAN	NAGW 2288	7743
11	U TX-AUSTIN	J H RAHE	HQ	L M TRAFTON	NAGW 2314	7745
11	U TX-AUSTIN	G S KUTTER	HQ	P R SHAPIRO	NAGW 2399	7747
11	U TX-AUSTIN	G S KUTTER	HQ	E T VISHNIAC	NAGW 2418	7748
11	U TX-AUSTIN	J RAHE	HQ	W D COCHRAN	NAGW 2465	7749
11	U TX-AUSTIN	M S KAPLAN	HQ	B TAPLEY	NAGW 2587	7750
11	U TX-AUSTIN	L J CAROFF	HQ	J C WHEELER	NAGW 2905	7755
11	U TX-AUSTIN	L J KALUZIENSKI	HQ	J WHEELER	NAGW 2975	7758
11	U TX-AUSTIN	R V STACHNIK	HQ	P D HEMENWAY	NAGW 3111	7759
11	U TX-AUSTIN	L S LAPIANA	HQ	D F LESTER	NAGW 3246	7762
11	U TX-AUSTIN	H C BRINTON	HQ	E S BARKER	NAGW 3306	7763
11	U TX-AUSTIN	F C OWENS	HQ	D E WINGET	NGT 00-050-468	7782
11	U TX-AUSTIN	F C OWENS	HQ	D JAFFE	NGT 00-050-476	7783
11	U TX-AUSTIN	F C OWENS	HQ	J C WHEELER	NGT 00-050-620	7786
11	U TX-AUSTIN	F C OWENS	HQ	G A SHIELDS	NGT 00-050-659	7787
11	U TX-AUSTIN	F C OWENS	HQ	P R SHAPIRO	NGT 00-050-849	7790
11	U TX-AUSTIN	J K ALEXANDER	HQ	D T JAFFE	NGT 00-050-998	7793
11	U TX-AUSTIN	D HOLLAND	HQ	C SEDAN	NGT 00-051-138	7796
11	U TX-DALLAS	J T BERGSTRAHL	HQ	R R HODGES	NAGW 2490	7817
11	U TX-DALLAS	T E MOORE	MSFC	R A HEELIS	NAS 8-36954	7824
11	BRIGHAM YOUNG UNIV	L E LASHER	ARC	D E JONES	NAG 2-687	7855
11	UNIV UTAH	J P NORRIS	GSFC	D B KIEDA	NAG 5-2349	7873
11	MIDDLEBURY COLLEGE	D WEST	GSFC	P F WINKLER	NAG 5-1408	7905
11	MIDDLEBURY COLLEGE	R PETRE	GSFC	P F WINKLER	NAG 5-1668	7906
11	GEORGE MASON UNIV	J P NORRIS	GSFC	R ELLSWORTH	NAG 5-1567	7952
11	GEORGE MASON UNIV	J P NORRIS	GSFC	M KAFATOS	NAG 5-2025	7953
11	GEORGE MASON UNIV	R OLIVERSEN	GSFC	M KAFATOS	NAG 5-2360	7957
11	HAMPDEN-SYDNEY COL	C E FICHTEL	GSFC	D A KNIFFEN	NAG 5-1742	7962
11	UNIV VIRGINIA	T P STECHER	GSFC	R W O'CONNELL	NAG 5-700	8087
11	UNIV VIRGINIA	D WEST	GSFC	D M WHITTLE	NAG 5-1445	8090
11	UNIV VIRGINIA	R PETRE	GSFC	C L SARAZIN	NAG 5-1577	8091
11	UNIV VIRGINIA	D WEST	GSFC	R W O'CONNELL	NAG 5-1877	8092
11	UNIV VIRGINIA	R PETRE	GSFC	C L SARAZIN	NAG 5-1891	8093
11	UNIV VIRGINIA	R PETRE	GSFC	T X THUAN	NAG 5-2060	8096
11	UNIV VIRGINIA	L J KALUZIENSKI	HQ	J F HAWLEY	NAGW 1510	8102
11	UNIV VIRGINIA	G S KUTTER	HQ	R A CHEVALIER	NAGW 2376	8111
11	UNIV VIRGINIA	G S KUTTER	HQ	R W O'CONNELL	NAGW 2596	8113

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11	UNIV WASHINGTON	D H BROCKER	ARC	W T SULLIVAN	NAG 2-698	8283
11	UNIV WASHINGTON	D WEST	GSFC	E B VITENSE	NAG 5-357	8289
11	UNIV WASHINGTON	D WEST	GSFC	B MARGON	NAG 5-1253	8296
11	UNIV WASHINGTON	D WEST	GSFC	P W HODGE	NAG 5-1444	8297
11	UNIV WASHINGTON	R PETRE	GSFC	B H MARGON	NAG 5-1518	8298
11	UNIV WASHINGTON	R PETRE	GSFC	S F ANDERSON	NAG 5-1623	8300
11	UNIV WASHINGTON	R PETRE	GSFC	P SZKODY	NAG 5-1927	8302
11	UNIV WASHINGTON	R PETRE	GSFC	G WALLERSTEIN	NAG 5-1984	8303
11	UNIV WASHINGTON	D WEST	GSFC	P A SZKODY	NAG 5-2114	8304
11	UNIV WASHINGTON	J R FISCHER	GSFC	G LAKE	NAG 5-2213	8305
11	UNIV WASHINGTON	R OLIVERSEN	GSFC	P A SZKODY	NAG 5-2303	8307
11	UNIV WASHINGTON	R OLIVERSEN	GSFC	P SZKODY	NAG 5-2315	8308
11	UNIV WASHINGTON	D WEST	GSFC	P SZKODY	NAG 5-2356	8309
11	UNIV WASHINGTON	J VARGAS	MSFC	J E DEETER	NAG 8-207	8311
11	UNIV WASHINGTON	J VARGAS	MSFC	J E DEETER	NAG 8-695	8312
11	UNIV WASHINGTON	F HORZ	JSC	D E BROWNLEE	NAG 9-637	8315
11	UNIV WASHINGTON	M ZOLENSKY	JSC	D E BROWNLEE	NAG 9-683	8316
11	UNIV WASHINGTON	G CLAYTON	HQ	B MARGON	NAGW 1163	8324
11	UNIV WASHINGTON	J T BERGSTRAHL	HQ	J E TILLMAN	NAGW 2041	8336
11	UNIV WASHINGTON	G S KUTTER	HQ	C J HOGAN	NAGW 2523	8343
11	UNIV WASHINGTON	L J CAROFF	HQ	C J HOGAN	NAGW 2569	8346
11	UNIV WASHINGTON	G S KUTTER	HQ	G LAKE	NAGW 2676	8350
11	UNIV WASHINGTON	L S LAPIANA	HQ	P SZKODY	NAGW 2784	8352
11	UNIV WASHINGTON	G R RIEGLER	HQ	P SZKODY	NAGW 3158	8357
11	UNIV WASHINGTON	L LAPIANA	HQ	C J HOGAN	NAGW 3251	8360
11	UNIV WASHINGTON	F C OWENS	HQ	D E BROWNLEE	NGT 00-050-514	8410
11	UNIV WASHINGTON	D K RUSSELL	HQ	G LAKE	NGT 00-070-314	8426
11	UNIV WASHINGTON	D K RUSSELL	HQ	B MARGON	NGT 00-070-325	8427
11	UNIV WASHINGTON	D WEST	GSFC	P SZKODY	NSG-5395	8429
11	UNIV WASHINGTON	D WEST	GSFC	E BOHM-VITENSE	NSG-5398	8430
11	WASHINGTON ST U	J K ALEXANDER	HQ	S HUDSON	NAGW 2823	8436
11	BELOIT COLLEGE	S SOBIESKI	GSFC	D J SCHROEDER	NAG 5-1620	8474
11	UNIV WISC-MADISON	C D LAUGHLIN	ARC	E B CHURCHWELL	NAG 2-859	8497
11	UNIV WISC-MADISON	D WEST	GSFC	B D SAVAGE	NAG 5-186	8505
11	UNIV WISC-MADISON	Y KONDO	GSFC	J A CARDELLI	NAG 5-832	8511
11	UNIV WISC-MADISON	D WEST	GSFC	B D SAVAGE	NAG 5-1349	8514
11	UNIV WISC-MADISON	D WEST	GSFC	K H NORDSIECK	NAG 5-1463	8516
11	UNIV WISC-MADISON	R PETRE	GSFC	J P CASSINELLI	NAG 5-1579	8517
11	UNIV WISC-MADISON	S SOBIESKI	GSFC	R C BLESS	NAG 5-1613	8520
11	UNIV WISC-MADISON	R PETRE	GSFC	D MCCAMMON	NAG 5-1665	8522
11	UNIV WISC-MADISON	R PETRE	GSFC	J P CASSINELLI	NAG 5-1683	8523
11	UNIV WISC-MADISON	R PETRE	GSFC	W T SANDERS	NAG 5-1726	8524
11	UNIV WISC-MADISON	D WEST	GSFC	K S BJORKMAN	NAG 5-1740	8525
11	UNIV WISC-MADISON	D WEST	GSFC	B SAVAGE	NAG 5-1806	8526
11	UNIV WISC-MADISON	R PETRE	GSFC	D MCCAMMON	NAG 5-1817	8527
11	UNIV WISC-MADISON	R PETRE	GSFC	J P CASSINELLI	NAG 5-1841	8528
11	UNIV WISC-MADISON	A SMITH	GSFC	B D SAVAGE	NAG 5-1852	8529
11	UNIV WISC-MADISON	R PETRE	GSFC	H B OGELMAN	NAG 5-1893	8531
11	UNIV WISC-MADISON	R PETRE	GSFC	W T SANDERS	NAG 5-1894	8532
11	UNIV WISC-MADISON	D WEST	GSFC	A C CODE	NAG 5-1998	8533
11	UNIV WISC-MADISON	J P NORRIS	GSFC	W KLUZNAK	NAG 5-2034	8534
11	UNIV WISC-MADISON	J P NORRIS	GSFC	W F FRY	NAG 5-2035	8535
11	UNIV WISC-MADISON	R PETRE	GSFC	M JUDA	NAG 5-2066	8536
11	UNIV WISC-MADISON	D WEST	GSFC	C M ANDERSON	NAG 5-2169	8537
11	UNIV WISC-MADISON	D WEST	GSFC	J P FINLEY	NAG 5-2170	8538
11	UNIV WISC-MADISON	D WEST	GSFC	J P CASSINELLI	NAG 5-2282	8539
11	UNIV WISC-MADISON	G C CLAYTON	HQ	V CASSINELLA	NAGW 422	8549
11	UNIV WISC-MADISON	H C BRINTON	HQ	F SCHERB	NAGW 695	8550
11	UNIV WISC-MADISON	G C CLAYTON	HQ	J S MATHIS	NAGW 1768	8554
11	UNIV WISC-MADISON	G R RIEGLER	HQ	J J MACFARLANE	NAGW 2210	8561

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11	UNIV WISC-MADISON	G S KUTTER	HQ	L S SPARKE	NAGW 2420	8563
11	UNIV WISC-MADISON	G S KUTTER	HQ	J A CARDELLI	NAGW 2520	8564
11	UNIV WISC-MADISON	G S KUTTER	HQ	D P COX	NAGW 2532	8565
11	UNIV WISC-MADISON	G S KUTTER	HQ	H B OGELMAN	NAGW 2643	8567
11	UNIV WISC-MADISON	W L QUAIDE	HQ	S LIMAYE	NAGW 2820	8569
11	UNIV WISC-MADISON	R STACHNIK	HQ	J E LAWLER	NAGW 2908	8572
11	UNIV WISC-MADISON	R STACHNIK	HQ	K BJORKMAN	NAGW 2921	8573
11	UNIV WISC-MADISON	H C BRINTON	HQ	F SCHERH	NAGW 3319	8581
11	UNIV WISC-MADISON	R V STACHNIK	HQ	C L JOSEPH	NAGW 3660	8583
11	UNIV WISC-MADISON	S C DUNKER	GSFC	W T DUNKER	NAS 5-26078	8590
11	UNIV WISC-MADISON	R R JOYROE	MSFC	A D CODE	NAS 5-26777	8591
11	UNIV WISC-MADISON	H D VITAGLIANO	GSFC	F ROESLER	NAS 5-30131	8592
11	UNIV WISC-MADISON	R R JAYRO	MSFC	W T SANDERS	NAS 8-38664	8600
11	UNIV WISC-MADISON	J K ALEXANDER	HQ	K H NORDSIECK	NGT 00-050-666	8611
11	UNIV WISC-MADISON	J K ALEXANDER	HQ	B D SAVAGE	NGT 00-051-003	8613
11	UNIV WISC-MADISON	D HOLLAND	HQ	E CHURCHWELL	NGT 00-051-132	8615
11	UNIV WYOMING	C D LAUGHLIN	ARC	H A THRONSON JR	NAG 2-134	8627
11	UNIV WYOMING	C D LAUGHLIN	ARC	C E WOODWARD	NAG 2-755	8628
11	UNIV WYOMING	R PETRE	GSFC	H A THRONSON	NAG 5-1860	8630
11	UNIV WYOMING	M E NEIN	MSFC	H A THRONSON	NAG 8-899	8633
11	UNIV WYOMING	H C BRINTON	HQ	R R HOWELL	NAGW 1276	8635
11	UNIV WYOMING	L J CAROFF	HQ	H A THRONSON	NAGW 3074	8640
11	U PUERTO RICO-MAYAGZ	F SIX	MSFC	J MACARI	NAG 8-193	8649
11	UNIV TORONTO	J N CUZZI	ARC	S TREMAINE	NAGW 2799	8671
12	ALA A&M UNIV	G FICHTH	MSFC	S TADROS	NAG 8-204	1013
12	AUBURN UNIV	I D BROWNE	JSC	P A SALPAS	NAG 9-330	1035
12	TUSKEGEE UNIV	K THOMPSON	KSC	N VAHDAT	NAG10-125	1065
12	UNIV ALA-BIRMINGHAM	R S SNYDER	MSFC	L J DELUCAS	NAG 8-840	1067
12	UNIV ALA-BIRMINGHAM	M MEYER	HQ	J C LACEY	NAGW 1512	1071
12	UNIV ALA-HUNTSVILLE	R S SNYDER	MSFC	J M VAN ALSTINE	NAG 8-955	1122
12	UNIV ALA-HUNTSVILLE	F C OWENS	HQ	J M HARRIS	NGT 00-050-753	1169
12	ARIZONA ST U	S CHANG	ARC	J R CRONIN	NCA 2-787	1309
12	ARIZONA ST U	F C OWENS	HQ	J CRONIN	NGT 00-070-100	1314
12	UNIV OF ARIZONA	I D BROWNE	JSC	W V BOYNTON	NAG 9-37	1381
12	UNIV OF ARIZONA	I D BROWNE	JSC	M J DRAKE	NAG 9-39	1382
12	CALIF INST OF TECH	I D BROWNE	JSC	S EPSTEIN	NAG 9-46	1607
12	CALIF INST OF TECH	J D RUMMEL	HQ	G A BLAKE	NAGW 1955	1626
12	CALIF INST OF TECH	F C OWENS	HQ	E M STOLPER	NGT 00-050-501	1680
12	CALIF INST OF TECH	H ASHKENAS	JPL	M OKUMURA	NGT 00-050-727	1687
12	CALIF INST OF TECH	F C OWENS	HQ	E M STOLPER	NGT 00-050-800	1689
12	CALIF INST OF TECH	H ASHKENAS	JPL	M OKUMURA	NGT 00-050-890	1692
12	CALIF INST OF TECH	D HOLLAND	HQ	D BURNETT	NGT 00-051-084	1696
12	CAL ST UNIV-HAYWARD	M MOORE	ARC	S B OPPENBEIMER	NGT 00-070-274	1734
12	SAN FRANCISCO ST U	G CARLE	ARC	J ORENBERG	NCA 2-712	1788
12	SAN JOSE ST U	M GOLUB	ARC	J J PESEK	NCA 2-720	1815
12	SAN JOSE ST U	S CHANG	ARC	A C LING	NCC 2-153	1828
12	SAN JOSE ST U	F C OWENS	HQ	P ENGLERT	NGT 00-070-131	1849
12	SONOMA ST U	D WEST	GSFC	L R COMINSKY	NAG 5-1260	1860
12	STANFORD UNIV	R D MACELROY	ARC	H C ANDERSON	NCA 2-557	1938
12	UNIV CALIF-BERKELEY	J D RUMMEL	HQ	R J SAYKALLY	NAGW 2763	2127
12	UNIV CALIF-BERKELEY	S CHANG	ARC	I TINOCO	NCA 2-714	2167
12	UNIV CALIF-BERKELEY	F C OWENS	HQ	B SADOULET	NGT 00-050-462	2196
12	UNIV CALIF-BERKELEY	J K ALEXANDER	HQ	R J SAYKALLY	NGT 00-050-939	2207
12	UNIV CALIF-DAVIS	J D RUMMEL	HQ	D W DEAMER	NAGW 1119	2235
12	UNIV CAL-LOS ANGELES	N H HAGEDORN	LERC	B S DUNN	NAG 3-1290	2333
12	UNIV CAL-LOS ANGELES	I D BROWNE	JSC	J F KERRIDGE	NAG 9-27	2365
12	UNIV CAL-LOS ANGELES	J D RUMMEL	HQ	J F KERRIDGE	NAGW 347	2371
12	UNIV CAL-RIVERSIDE	B J HERREN	MSFC	A MCPHERSON	NAG 8-956	2464
12	UNIV CAL-RIVERSIDE	B J HERRON	MSFC	A MCPHERSON	NAG 8-957	2465
12	UNIV CAL-RIVERSIDE	B J HERREN	MSFC	A MCPHERSON	NAS 8-39763	2467

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12	UNIV CAL-RIVERSIDE	B J HERREN	MSFC	A MCPHERSON	NAS 8-39764	2468
12	UNIV CAL-RIVERSIDE	B J NERREN	MSFC	A MCPHERSON	NAS 8-39765	2469
12	UNIV CAL-SAN DIEGO	I D BROWNE	JSC	J R ARNOLD	NAG 9-33	2513
12	U CAL-SAN FRANCISCO	S CHANG	ARC	A POHORILLE	NCA 2-726	2611
12	U CAL-SAN FRANCISCO	S CHANG	ARC	A POHORILLE	NCA 2-792	2612
12	U CAL-SAN FRANCISCO	S CHANG	ARC	A POHORILLE	NCC 2-772	2618
12	U CAL-SANTA CRUZ	D BLAKE	ARC	I BENJAMIN	NCA 2-604	2681
12	U CAL-SANTA CRUZ	S CHANG	ARC	A KANAVARIOTI	NCA 2-650	2682
12	U CAL-SANTA CRUZ	S CHANG	ARC	A KANAVARIOTI	NCC 2-534	2689
12	UNIV COL-BOULDER	D WEST	GSFC	M CUNTZ	NAG 5-1374	2840
12	UNIV COL-BOULDER	J ALEXANDER	HQ	M TOLBERT	NGT 00-050-923	3052
12	UNIV COL-BOULDER	G LESANE	HQ	M A TOLBERT	NGT 00-051-135	3062
12	YALE UNIV	M J RABINOWITZ	LERC	M D SMOOKE	NAG 3-1195	3115
12	CATHOLIC UNIV	D WEST	GSFC	F C BRUHWELLER	NAG 5-2126	3230
12	CATHOLIC UNIV	D F NAVA	GSFC	D GUIMAN	NSG-5173	3234
12	FLORIDA A&M UNIV	W M HUO	ARC	C A WEATHERFORD	NCC 2-492	3257
12	FLORIDA ST U	M C LEE	HQ	E MANOUSAKIS	NAGW 3326	3322
12	UNIV OF CENTRAL FLA	P WELCH	KSC	C A CLAUSEN	NAG10-94	3346
12	UNIV FLORIDA	C M WONG	ARC	R A YOST	NAG 2-837	3376
12	UNIV FLORIDA	H L NGUYEN	LERC	G J MICKLOW	NAG 3-1113	3378
12	UNIV FLORIDA	M A MEADOR	LERC	R S DURAN	NCC 3-255	3408
12	CLARK ATLANTA UNIV	P R PROKOPIUS	LERC	J L REED	NAG 3-1080	3470
12	GEORGIA INST OF TECH	R S SNYDER	MSFC	F L SUDDATH	NAG 8-713	3516
12	GEORGIA SOUTHERN COL	B DONN	GSFC	R H NELSON	NAG 5-496	3577
12	UNIV HAWAII-MANOA	J D RUMMEL	HQ	T C OWEN	NAGW 2631	3667
12	NORTHWESTERN UNIV	S R LANGHOFF	ARC	G C SCHATZ	NCC 2-774	3768
12	NORTHWESTERN UNIV	D K RUSSELL	HQ	T MARKS	NGT 00-070-355	3775
12	SO ILL U-CARBONDALE	J D RUMMEL	HQ	S W FOX	NAGW 2267	3778
12	SO ILL U-CARBONDALE	J R VALENTIN	ARC	J B PHILLIPS	NCA 2-718	3779
12	SO ILL U-CARBONDALE	F C OWENS	HQ	J B PHILLIPS	NGT 00-070-233	3780
12	MANCHESTER COLLEGE	C HUNG	LERC	E G MILLER	NCC 3-317	3988
12	PURDUE UNIV	A F HEPP	LERC	C P KUBIAK	NAG 3-1336	4017
12	PURDUE UNIV	I D BROWNE	JSC	M E LIPSCHUTZ	NAG 9-48	4027
12	PURDUE UNIV	A F HEPP	LERC	P E FANWICK	NCC 3-246	4046
12	PURDUE UNIV	F C OWENS	HQ	C P KUBIAK	NGT 00-050-634	4051
12	PURDUE UNIV	F C OWENS	HQ	E R GRANT	NGT 00-070-139	4063
12	UNIV IOWA	G S WILLIAMSON	LERC	D P EYMAN	NAG 3-893	4141
12	UNIV KANSAS	F C OWENS	HQ	T E CRAVENS	NGT 00-050-472	4228
12	UNIV MD-COLLEGE PARK	J W KELLER	GSFC	J WEINER	NAG 5-1966	4504
12	UNIV MD-COLLEGE PARK	J D RUMMEL	HQ	C PONNAMPERUMA	NAGW 1895	4542
12	UNIV MD-COLLEGE PARK	J NUTH	GSFC	R K KHANNA	NSG-5172	4630
12	U MD BALTIMORE CNTY	D K RUSSELL	HQ	J VINCENT	NGT 00-070-331	4634
12	HARVARD UNIV	F MONTEGANI	LERC	A R BARRON	NGT 00-050-942	4746
12	MASS INST OF TECH	R DARTY	MSFC	J SZEKELY	NAG 8-815	4843
12	MASS INST OF TECH	R C DARTY	MSFC	J SZEKELY	NAG 8-970	4851
12	MASS INST OF TECH	C CHACKERIAN	ARC	J STEINFELD	NCA 2-573	4944
12	MICHIGAN ST U	F C OWENS	HQ	M G KANATZIDIS	NGT 00-050-831	5080
12	U MICHIGAN-ANN ARBOR	J D RUMMEL	HQ	J C WALKER	NAGW 176	5159
12	U MICHIGAN-ANN ARBOR	F C OWENS	HQ	J R BARKER	NGT 00-050-521	5230
12	UNIV MISSOURI-ROLLA	E C ETHRIDGE	MSFC	C S RAY	NAG 8-898	5394
12	UNIV MISSOURI-ROLLA	D V TRINH	MSFC	M R VAN DE MARK	NAS 8-38259	5396
12	WASHINGTON UNIV	M MEYER	HQ	E L SHOCK	NAGW 2818	5423
12	WASHINGTON UNIV	W L QUAIDE	HQ	R W WALKER	NAGW 2836	5424
12	WASHINGTON UNIV	W V JONES	HQ	J KLARMAN	NAGW 3424	5439
12	UNIV NEVADA-RENO	G A MINER	LARC	J I CLINE	NAG 1-1308	5509
12	PRINCETON UNIV	F C OWENS	HQ	J SARMIENTO	NGT 00-050-425	5680
12	RUTGERS ST U-PISCATWY	M L PUSEY	MSFC	J M WIENCEK	NAG 8-975	5708
12	NEW MEX ST U-LAS CR	S H GOLDSTEIN	JSC	C T SKOWLUND	NAG 9-557	5745
12	COLUMBIA UNIV	S GREEN	GSFC	G W FLYNN	NCC 5-46	5903
12	CORNELL UNIV	J RUMMEL	HQ	D A USHER	NAGW 493	5964

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12	CORNELL UNIV	M MEYER	HQ	C SAGAN	NAGW 1896	5972
12	POLY INST OF NY	R L KROES	MSFC	A S MYERSON	NAG 8-960	6052
12	RENSSELAER POLY INST	J W CONNELL	LARC	J V CRIVELLO	NAG 1-980	6054
12	RENSSELAER POLY INST	D L PALUMBO	LARC	J HADDOCK	NAG 1-1469	6059
12	RENSSELAER POLY INST	J D RUMMEL	HQ	J P FERRIS	NAGW 2781	6074
12	RENSSELAER POLY INST	F C OWENS	HQ	J P FERRIS	NGT 00-050-601	6085
12	RENSSELAER POLY INST	F C OWENS	HQ	J P FERRIS	NGT 00-050-602	6086
12	RENSSELAER POLY INST	J ALEXANDER	HQ	J P FERRIS	NGT 00-050-918	6087
12	DUKE UNIV	M C LEE	HQ	H MEYER	NAGW 3328	6236
12	WAKE FOREST UNIV	D H PHILLIPS	LARC	C F JACKELS	NCC 1-55	6353
12	BALDWIN-WALLACE COL	K W STREET	LERC	J GORSE	NCC 3-268	6362
12	BALDWIN-WALLACE COL	E G WINTUCKY	LERC	J W MCCARGAR	NCC 3-300	6363
12	CASE WESTERN RES U	R S BALDWIN	LERC	G KLOPMAN	NAG 3-1282	6387
12	CASE WESTERN RES U	M J RABINOWITZ	LARC	J M PRAHL	NCC 3-85	6413
12	CASE WESTERN RES U	M A MEADOR	LERC	C N JUKENIK	NCC 3-112	6418
12	CASE WESTERN RES U	C H UANG	LERC	J B LANDO	NCC 3-152	6427
12	CASE WESTERN RES U	F C OWENS	HQ	W YOUNGS	NGT 00-050-375	6458
12	CASE WESTERN RES U	F C OWENS	HQ	W M RITCHEY	NGT 00-050-636	6461
12	CASE WESTERN RES U	F MONTEGANI	LERC	E B YEAGER	NGT 00-050-838	6462
12	CASE WESTERN RES U	C HIX	JPL	G KLOPMAN	NGT 00-051-041	6466
12	CASE WESTERN RES U	F J MONTEGANI	LERC	D SCHERSON	NGT 00-070-281	6472
12	CLEVELAND ST U	R L DAVIES	LERC	R G MEGARGLE	NCC 3-122	6504
12	CLEVELAND ST U	A F HEPP	LERC	S A DURAJ	NCC 3-162	6509
12	CLEVELAND ST U	K W STREET	LERC	D B SHAH	NCC 3-270	6520
12	OHIO UNIV	M A MEADOR	LERC	D A GULING	NCC 3-194	6639
12	UNIV AKRON	P M HERGENROTHER	LARC	F W HARRIS	NAG 1-448	6645
12	UNIV AKRON	M A MEADOR	LERC	W J YOUNGS	NCC 3-225	6685
12	UNIV TOLEDO	M J RABINOWITZ	LERC	K J DEWITT	NAG 3-1307	6749
12	UNIV OKLAHOMA-NORMAN	J D RUMMEL	HQ	M H ENGEL	NAGW 2765	6795
12	OREGON ST U	J D RUMMEL	HQ	B R SIMONEIT	NAGW 2833	6825
12	LEHIGH UNIV	C M DAVIS	MSFC	J W VANDERHOFF	NAG 8-867	6923
12	LEHIGH UNIV	D M KORNFELD	MSFC	J W VANDERHOFF	NAG 8-972	6924
12	PA ST U.-UNIV. PARK	M J RABINOWITZ	LERC	M Y FRENKLACH	NAG 3-991	6964
12	PA ST U.-UNIV. PARK	F MONTEGANI	LERC	H R ALLOCK	NGT 00-051-131	7080
12	BROWN UNIV	F C OWENS	HQ	C M PIETERS	NGT 00-050-558	7178
12	VANDERBILT UNIV	R C DARTY	MSFC	R BAYUZICK	NAG 8-849	7342
12	VANDERBILT UNIV	R C DARTY	MSFC	R J BAYUZICK	NAG 8-978	7343
12	SOUTHWEST TEXAS ST U	A K ST CLAIR	LARC	P E CASSIDY	NAG 1-631	7457
12	SOUTHWEST TEXAS ST U	E J PRIOR	LARC	P E CASSIDY	NGT 00-070-271	7458
12	TEXAS SOUTHERN UNIV	D S MCKAY	JSC	B L WILSON	NAG 9-299	7573
12	UNIV HOUSTON	R L SAUER	JSC	R B FREAS	NAG 9-418	7593
12	UNIV HOUSTON	J D RUMMEL	HQ	J ORO	NAGW 2788	7621
12	UNIV HOUSTON	D HOLLAND	HQ	G E FOX	NGT 00-051-085	7631
12	U TX-AUSTIN	J K ALEXANDER	HQ	T KODADEK	NGT 00-050-869	7792
12	C-WILLIAM AND MARY	E R LONG	LARC	D E KRANBUEHL	NAG 1-237	7923
12	C-WILLIAM AND MARY	E R LONG	LARC	D E KRANBUEHL	NAG 1-1019	7926
12	C-WILLIAM AND MARY	S T LONG	LARC	R L KIEFER	NCC 1-126	7935
12	C-WILLIAM AND MARY	F C OWENS	HQ	R A ORWOLL	NGT 00-070-211	7942
12	HAMPTON UNIV	P M HERGENROTHER	LARC	G NWOKOGU	NAG 1-905	7965
12	NORFOLK ST U	P R YOUNG	LARC	L MATTIX	NAG 1-1453	7985
12	OLD DOMINION UNIV	D H PHILLIPS	LARC	R L AKE	NCC 1-147	8034
12	UNIV VIRGINIA	F C OWENS	HQ	S A MACKO	NGT 00-050-775	8134
12	VA PLOY INST & ST U	P M HERGENROTHER	LARC	G L WILKES	NAG 1-1101	8183
12	VA PLOY INST & ST U	W S SLEMP	LARC	J P WIGHTMAN	NAG 1-1186	8187
12	VA PLOY INST & ST U	P M HERGENROTHER	LARC	J F WOLFE	NAG 1-1250	8190
12	VA COMMONWEALTH UNIV	P M HERGENROTHER	LARC	R G BASS	NAG 1-1251	8263
12	UNIV WASHINGTON	B MCLACHLAN	ARC	M GOUTERMAN	NCA 2-485	8383
12	UNIV WASHINGTON	B MCLACHLAN	ARC	M GOUTERMAN	NCA 2-658	8385
12	UNIV WASHINGTON	B MCLACHLAN	ARC	M GOUTERMAN	NCA 2-2002	8387
12	UNIV WASHINGTON	F C OWENS	HQ	M GOUTHERMAN	NGT 00-050-561	8411

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12	UNIV WASHINGTON	F C OWENS	HQ	M GOUTERMAN	NGT 00-050-741	8417
12	UNIV WASHINGTON	B HASTINGS	ARC	M GOUTERMAN	NGT 00-050-933	8422
12	UNIV WISC-MADISON	W B ALSTON	LERC	J P DROSKE	NAG 3-1209	8499
12	UNIV QUEENSLAND	P R YOUNG	LARC	J H O'DONNELL	NAGW 2495	8669
13	ALA A&M UNIV	G T SENG	LERC	H A ABDELDAYEM	NAG 3-1408	1000
13	ALA A&M UNIV	J L RANDALL	MSFC	M C GEORGE	NAG 8-107	1004
13	ALA A&M UNIV	J L RANDALL	MSFC	M D AGGARWAL	NAG 8-125	1006
13	ALA A&M UNIV	G H FICHTL	MSFC	S R MURTY	NAG 8-163	1007
13	ALA A&M UNIV	G FICHTL	MSFC	K J CHANG	NAG 8-173	1008
13	ALA A&M UNIV	G H FICHTL	MSFC	R B LAL	NAG 8-203	1012
13	ALA A&M UNIV	G A FICHTL	MSFC	R B LAL	NAG 8-251	1016
13	ALA A&M UNIV	K R TAYLOR	MSFC	P VENKATESWARLU	NAG 8-907	1017
13	ALA A&M UNIV	G H FICHTL	MSFC	P VENKATESWARLU	NCC 8-27	1022
13	AUBURN UNIV	R A TAYLOR	MSFC	R ZEE	NAS 8-37823	1038
13	AUBURN UNIV	F SIX	MSFC	J D PEREZ	NGT 00-051-046	1053
13	TUSKEGEE UNIV	V K RAWLIN	LERC	P K RAY	NAG 3-1388	1059
13	UNIV ALA-BIRMINGHAM	P A CURRERI	MSFC	B J ANDREWS	NAG 8-768	1066
13	UNIV ALA-BIRMINGHAM	P A CURRERI	MSFC	T J WDOWIAK	NAG 8-928	1068
13	UNIV ALA-BIRMINGHAM	F C GILLET	HQ	T J WDOWIAK	NAGW 749	1069
13	UNIV ALA-BIRMINGHAM	M L PUSEY	MSFC	L J DELUCAS	NAS 8-39766	1077
13	UNIV ALA-BIRMINGHAM	F C OWENS	HQ	D G AGRESTI	NGT 00-050-554	1078
13	UNIV ALA-BIRMINGHAM	F SIX	MSFC	D G AGRESTI	NGT 00-050-879	1082
13	UNIV ALA-BIRMINGHAM	F SIX	MSFC	D L SHEALY	NGT 00-050-880	1083
13	UNIV ALA-HUNTSVILLE	D B SNYDER	LERC	N SINGH	NAG 3-1373	1087
13	UNIV ALA-HUNTSVILLE	W L CHISHOLM	MSFC	R H COMFORT	NAG 8-134	1096
13	UNIV ALA-HUNTSVILLE	T E MOORE	MSFC	R H COMFORT	NAG 8-239	1102
13	UNIV ALA-HUNTSVILLE	S L LEHOCZKY	MSFC	E E ANDERSON	NAG 8-767	1106
13	UNIV ALA-HUNTSVILLE	T E MOORE	MSFC	G R WILSON	NAG 8-822	1109
13	UNIV ALA-HUNTSVILLE	J M DAVIS	MSFC	Z MUSIELAK	NAG 8-839	1111
13	UNIV ALA-HUNTSVILLE	J W KAUFMAN	MSFC	R J HUNG	NAG 8-938	1120
13	UNIV ALA-HUNTSVILLE	H S AHLUWALIA	HQ	S T WU	NAGW 9	1123
13	UNIV ALA-HUNTSVILLE	H S AHLUWALIA	HQ	A G EMSLIE	NAGW 294	1124
13	UNIV ALA-HUNTSVILLE	M M MELLOTT	HQ	P G RICHARDS	NAGW 996	1126
13	UNIV ALA-HUNTSVILLE	M M MELLOTT	HQ	J L HORWITZ	NAGW 1554	1127
13	UNIV ALA-HUNTSVILLE	M M MELLOTT	HQ	R H COMFORT	NAGW 1630	1128
13	UNIV ALA-HUNTSVILLE	M M MELLOTT	HQ	Y TAKAHASHI	NAGW 1651	1129
13	UNIV ALA-HUNTSVILLE	W V JONES	HQ	J C GREGORY	NAGW 2023	1130
13	UNIV ALA-HUNTSVILLE	J D BOHLIN	HQ	J M FONTENLA	NAGW 2096	1131
13	UNIV ALA-HUNTSVILLE	M M MELLOTT	HQ	N SINGH	NAGW 2128	1132
13	UNIV ALA-HUNTSVILLE	J D BOHLIN	HQ	N SINGH	NAGW 2903	1135
13	UNIV ALA-HUNTSVILLE	W J WAGNER	HQ	M MACHADO	NAGW 2971	1137
13	UNIV ALA-HUNTSVILLE	E C WHIPPLE	HQ	G R WILSON	NAGW 3470	1138
13	UNIV ALA-HUNTSVILLE	W V JONES	HQ	Y TAKAHASHI	NAGW 3540	1139
13	UNIV ALA-HUNTSVILLE	W J WAGNER	HQ	A G EMSLIE	NAGW 3617	1140
13	UNIV ALA-HUNTSVILLE	M M MELLOTT	HQ	D G TORR	NAGW 3692	1142
13	UNIV ALA-HUNTSVILLE	G H FICHTAL	MSFC	M R TORR	NAS 8-38145	1150
13	UNIV ALA-HUNTSVILLE	F SIX	MSFC	A G EMSLIE	NGT 00-050-866	1170
13	UNIV ALA-HUNTSVILLE	M BURRELL	GSFC	R T MCNIDER	NGT 00-051-031	1172
13	UNIV ALA-UNIV	W T POWERS	MSFC	K W WHITAKER	NAG 8-279	1191
13	UNIV ALASKA-FAIRBNKS	L J EARLY	GSFC	C S DEEHR	NAG 5-693	1203
13	UNIV ALASKA-FAIRBNKS	S A CURTIS	GSFC	M H REES	NAG 5-1097	1206
13	UNIV ALASKA-FAIRBNKS	T J BIRMINGHAM	GSFC	L C LEE	NAG 5-1504	1207
13	UNIV ALASKA-FAIRBNKS	R A HOFFMAN	GSFC	D R WEIMER	NAG 5-1780	1210
13	UNIV ALASKA-FAIRBNKS	G D BULLOCK	GSFC	J D CRAVEN	NAG 5-1915	1211
13	UNIV ALASKA-FAIRBNKS	L J EARLY	GSFC	E WESCOTT	NAG 5-5000	1213
13	UNIV ALASKA-FAIRBNKS	L J EARLY	GSFC	D D SENTMAN	NAG 5-5012	1214
13	UNIV ALASKA-FAIRBNKS	L J EARLY	GSFC	E WESCOTT	NAG 6-100	1217
13	UNIV ALASKA-FAIRBNKS	M M MELLOTT	HQ	J G ROEDERER	NAGW 1342	1219
13	UNIV ALASKA-FAIRBNKS	D L REASONER	HQ	T J HALINAN	NAGW 2857	1230
13	UNIV ALASKA-FAIRBNKS	D L REASONER	HQ	D LUMMERZHEIM	NAGW 3037	1232



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13	UNIV ALASKA-FAIRBNKS	M M MELLOTT	HQ	J D CRAVEN	NAGW 3436	1233
13	UNIV ALASKA-FAIRBNKS	E C WHIPPLE	HQ	J D CRAVEN	NAGW 3441	1234
13	UNIV ALASKA-FAIRBNKS	E C WHIPPLE	HQ	S AKASOFU	NAGW 3663	1235
13	UNIV ALASKA-FAIRBNKS	F C OWENS	HQ	W F WEEKS	NGT 00-050-534	1247
13	UNIV OF ARIZONA	J W WILSON	LARC	B D GANAPOL	NAG 1-1041	1324
13	UNIV OF ARIZONA	L J EARLY	GSFC	A L BROADFOOT	NAG 5-637	1348
13	UNIV OF ARIZONA	T J BIRMINGHAM	GSFC	J R JOKIPII	NAG 5-2251	1368
13	UNIV OF ARIZONA	E WHIPPLE	HQ	E LEVY	NAGW 1914	1420
13	UNIV OF ARIZONA	J C LING	HQ	J R JOKIPPI	NAGW 1931	1422
13	UNIV OF ARIZONA	M D BICAY	HQ	W F HOFFMAN	NAGW 2357	1443
13	UNIV OF ARIZONA	W V JONES	HQ	J KOTA	NAGW 2549	1454
13	UNIV OF ARIZONA	E C WHIPPLE	HQ	F HERBERT	NAGW 3440	1487
13	UNIV OF ARIZONA	E C WHIPPLE	HQ	C CURTIS	NAGW 3635	1496
13	UNIV OF ARIZONA	W V JONES	HQ	A BROADFOOT	NAGW 3657	1498
13	UNIV OF ARIZONA	F C OWENS	HQ	D E SHEMANSKY	NGT 00-050-303	1528
13	UNIV OF ARIZONA	F C OWENS	HQ	F LOW	NGT 00-050-382	1529
13	UNIV OF ARIZONA	F C OWENS	HQ	S SOROOSHIAN	NGT 00-050-626	1536
13	UNIV OF ARIZONA	F C OWENS	HQ	U FINK	NGT 00-050-661	1537
13	UNIV ARK-LITTLE ROCK	W W ST. CYR	SSC	K HUDSON	NAG13-26	1566
13	CALIF INST OF TECH	C L DARTY	MSFC	W L JOHNSON	NAG 8-905	1603
13	CALIF INST OF TECH	R C DARTY	MSFC	W L JOHNSON	NAG 8-954	1605
13	CALIF INST OF TECH	J D BOHLIN	HQ	G HURFORD	NAGW 1706	1621
13	CALIF INST OF TECH	J D BOHLIN	HQ	H ZIRIN	NAGW 1972	1628
13	CALIF INST OF TECH	J K ALEXANDER	HQ	R A MEWALDT	NAGW 2806	1647
13	CALIF INST OF TECH	W J WAGNER	HQ	D GARY	NAGW 3005	1652
13	CALIF INST OF TECH	W V JONES	HQ	E C STONE	NAGW 3012	1654
13	CALIF INST OF TECH	W J WAGNER	HQ	P GOLDBREICH	NAGW 3018	1655
13	CALIF INST OF TECH	J LAUDADIO	GSFC	E STONE	NAS 5-31459	1675
13	CALIF INST OF TECH	F C OWENS	HQ	T G PHILLIPS	NGT 00-050-429	1678
13	CALIF INST OF TECH	A ASHKENAS	JPL	G NEUGEBAVER	NGT 00-050-893	1694
13	CALIF INST OF TECH	D HOLLAND	HQ	R MEWALDT	NGT 00-051-156	1697
13	CALIF INST OF TECH	F SIX	MSFC	T A PRINCE	NGT 00-051-184	1698
13	CALIF INST OF TECH	J K ALEXANDER	HQ	R A HREWALDS	NGT 00-070-287	1701
13	CAL ST U-NORTHBRIDGE	W WAGNER	HQ	G A CHAPMAN	NAGW 2453	1747
13	CAL ST U-NORTHBRIDGE	W J WAGNER	HQ	G A CHAPMAN	NAGW 2770	1748
13	SAN JOSE ST U	J VALENTIN	ARC	J F BECKER	NCA 2-651	1811
13	SAN JOSE ST U	B TOON	ARC	P HAMILL	NCA 2-710	1814
13	SAN JOSE ST U	F C OWENS	HQ	J F BECKER	NGT 00-070-227	1850
13	STANFORD UNIV	L J EARLY	GSFC	J G TIMOTHY	NAG 5-664	1883
13	STANFORD UNIV	S M WANDER	HQ	D R CHAPMAN	NAGW 965	1895
13	STANFORD UNIV	M M MELLOTT	HQ	U S INAN	NAGW 1582	1897
13	STANFORD UNIV	M M MELLOTT	HQ	R A HELLIWELL	NAGW 1680	1898
13	STANFORD UNIV	M M MELLOTT	HQ	J R SPREITER	NAGW 1790	1899
13	STANFORD UNIV	J D BOHLIN	HQ	V PETROSIAN	NAGW 1976	1903
13	STANFORD UNIV	W WAGNER	HQ	P A STURROCK	NAGW 2265	1906
13	STANFORD UNIV	L J KALUZIENSKI	HQ	P A STURROCK	NAGW 2290	1907
13	STANFORD UNIV	J K ALEXANDER	HQ	A B WALKER	NAGW 2776	1911
13	STANFORD UNIV	B M CARPENTER	HQ	C W EVERITT	NAGW 2793	1912
13	STANFORD UNIV	D L RESONER	HQ	U INAN	NAGW 2871	1913
13	STANFORD UNIV	C POE	LARC	G S SPRINGER	NAS 1-18778	1923
13	STANFORD UNIV	J GERVIN	GSFC	R H SCHERRER	NAS 5-30386	1925
13	STANFORD UNIV	R ISE	MSFC	C W EVERITT	NAS 8-36125	1928
13	STANFORD UNIV	F C OWENS	HQ	A B WALKER	NGT 00-050-774	2004
13	STANFORD UNIV	J K ALEXANDER	HQ	J A LIPA	NGT 00-050-856	2006
13	STANFORD UNIV	J ALEXANDER	HQ	R WAGONER	NGT 00-050-938	2008
13	STANFORD UNIV	F C OWENS	HQ	V PETROSIAN	NGT 00-070-178	2014
13	STANFORD UNIV	F C OWENS	HQ	A WALKER	NGT 00-070-182	2016
13	STANFORD UNIV	F C OWENS	HQ	R V WAGONER	NGT 00-070-194	2018
13	STANFORD UNIV	G SOFFEN	GSFC	A B WALKER	NGT 00-070-284	2024
13	STANFORD UNIV	D K RUSSELL	HQ	A WALKER	NGT 00-070-364	2031

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13	STANFORD UNIV	L J EARLY	GSFC	A B WALKER	NSG-5131	2035
13	UNIV. OF CALIFORNIA	L J EARLY	GSFC	S CHAKRABARTI	NAG 5-680	2036
13	UNIV CALIF-BERKELEY	C R MCCREIGHT	ARC	P L RICHARDS	NAG 2-711	2047
13	UNIV CALIF-BERKELEY	L J EARLY	GSFC	C W CARLSON	NAG 5-657	2055
13	UNIV CALIF-BERKELEY	L J EARLY	WFF	S CHAKRABARTI	NAG 5-665	2056
13	UNIV CALIF-BERKELEY	L J EARLY	GSFC	C S BOWYER	NAG 5-696	2057
13	UNIV CALIF-BERKELEY	M H ACUNA	GSFC	R P LIN	NAG 5-959	2058
13	UNIV CALIF-BERKELEY	J D RUMMEL	HQ	A L BETZ	NAGW 681	2097
13	UNIV CALIF-BERKELEY	W V JONES	HQ	H J CRAWFORD	NAGW 1503	2100
13	UNIV CALIF-BERKELEY	M M MELLOTT	HQ	C W CARLSON	NAGW 1565	2102
13	UNIV CALIF-BERKELEY	M M MELLOTT	HQ	F S MOZER	NAGW 1626	2104
13	UNIV CALIF-BERKELEY	M M MELLOTT	HQ	K A ANDERSON	NAGW 1795	2107
13	UNIV CALIF-BERKELEY	W V JONES	HQ	P B PRICE	NAGW 2000	2110
13	UNIV CALIF-BERKELEY	W V JONES	HQ	P B PRICE	NAGW 2104	2112
13	UNIV CALIF-BERKELEY	W J WAGNER	HQ	K A ANDERSON	NAGW 2452	2117
13	UNIV CALIF-BERKELEY	W WAGNER	HQ	B B STARK	NAGW 2516	2119
13	UNIV CALIF-BERKELEY	L KALUZIENSKI	HQ	O H SIEGMOND	NAGW 2640	2123
13	UNIV CALIF-BERKELEY	W J WAGNER	HQ	G H FISHER	NAGW 3429	2140
13	UNIV CALIF-BERKELEY	M M MELLOTT	HQ	C A CATTELL	NAGW 3473	2141
13	UNIV CALIF-BERKELEY	D GALOPPO	GSFC	F S MOZER	NAS 5-30241	2150
13	UNIV CALIF-BERKELEY	F WAINSCOTT	GSFC	R LIN	NAS 5-30366	2151
13	UNIV CALIF-BERKELEY	W C ANSELM	GSFC	F S MOZER	NAS 5-30367	2152
13	UNIV CALIF-BERKELEY	J D SCARGLE	ARC	D L DONOHO	NCA 2-488	2160
13	UNIV CALIF-BERKELEY	F C OWENS	HQ	D E LARSON	NGT 00-050-271	2191
13	UNIV CALIF-BERKELEY	F C OWENS	HQ	A E LANGE	NGT 00-050-312	2192
13	UNIV CALIF-BERKELEY	F C OWENS	HQ	C H TOWNES	NGT 00-050-450	2193
13	UNIV CALIF-BERKELEY	F C OWENS	HQ	F S MOZER	NGT 00-050-451	2194
13	UNIV CALIF-BERKELEY	F C OWENS	HQ	P B PRICE	NGT 00-050-454	2195
13	UNIV CALIF-BERKELEY	F C OWENS	HQ	S M KAHN	NGT 00-050-467	2197
13	UNIV CALIF-BERKELEY	F C OWENS	HQ	P L RICHARDS	NGT 00-050-603	2198
13	UNIV CALIF-BERKELEY	F C OWENS	HQ	R P LIN	NGT 00-050-607	2199
13	UNIV CALIF-BERKELEY	F C OWENS	HQ	S M KAHN	NGT 00-050-613	2200
13	UNIV CALIF-BERKELEY	F C OWENS	HQ	A E LANGE	NGT 00-050-771	2201
13	UNIV CALIF-BERKELEY	F C OWENS	HQ	G F SMOOT	NGT 00-050-783	2202
13	UNIV CALIF-BERKELEY	F C OWENS	HQ	S CHAKRABARTI	NGT 00-050-787	2203
13	UNIV CALIF-BERKELEY	J ALEXANDER	HQ	P B PRICE	NGT 00-050-913	2205
13	UNIV CALIF-BERKELEY	D HOLLAND	HQ	O H SIEGMUND	NGT 00-051-062	2209
13	UNIV CALIF-BERKELEY	D HOLLAND	HQ	A E LANGE	NGT 00-051-076	2210
13	UNIV CALIF-IRVINE	T J BIRMINGHAM	GSFC	G V HOVEN	NAG 5-2257	2292
13	UNIV CALIF-IRVINE	W J WAGNER	HQ	G VAN HOVEN	NAGW 2449	2297
13	UNIV CALIF-IRVINE	W V JONES	HQ	S W BARWICK	NAGW 2487	2298
13	UNIV CALIF-IRVINE	M M MELLOTT	HQ	J LINKER	NAGW 2506	2299
13	UNIV CALIF-IRVINE	M M MELLOTT	HQ	N ROSTOKER	NAGW 2655	2300
13	UNIV CALIF-IRVINE	W J WAGNER	HQ	G VAN HOVEN	NAGW 2791	2303
13	UNIV CALIF-IRVINE	M MOORE	ARC	S P RUDEN	NGT 00-050-932	2312
13	UNIV CAL-LOS ANGELES	J M HICKMAN	LERC	C T RUSSELL	NAG 3-1503	2337
13	UNIV CAL-LOS ANGELES	S A CURTIS	GSFC	R J STRONGWAY	NAG 5-863	2343
13	UNIV CAL-LOS ANGELES	S A CURTIS	GSFC	M A ABDALLA	NAG 5-1100	2346
13	UNIV CAL-LOS ANGELES	M ACUNA	GSFC	M G KIVELSON	NAG 5-1167	2348
13	UNIV CAL-LOS ANGELES	T J BIRMINGHAM	GSFC	M ASHOUR-ABDALLA	NAG 5-1480	2353
13	UNIV CAL-LOS ANGELES	J D BOHLIN	HQ	R ULRICH	NAGW 472	2372
13	UNIV CAL-LOS ANGELES	J T BERGSTRAHL	HQ	J G LUHMANN	NAGW 1347	2374
13	UNIV CAL-LOS ANGELES	M M MELLOTT	HQ	D D BARBOSA	NAGW 1558	2375
13	UNIV CAL-LOS ANGELES	M M MELLOTT	HQ	R L STENZEL	NAGW 1570	2376
13	UNIV CAL-LOS ANGELES	M M MELLOTT	HQ	C F KENNEL	NAGW 1624	2377
13	UNIV CAL-LOS ANGELES	M M MELLOTT	HQ	J E MAGGS	NAGW 1635	2378
13	UNIV CAL-LOS ANGELES	M M MELLOTT	HQ	R M THORNE	NAGW 1639	2379
13	UNIV CAL-LOS ANGELES	M M MELLOTT	HQ	J M DAWSON	NAGW 1649	2380
13	UNIV CAL-LOS ANGELES	M M MELLOTT	HQ	K K KHURANA	NAGW 2047	2382
13	UNIV CAL-LOS ANGELES	M M MELLOTT	HQ	R MCPHERRON	NAGW 2054	2383

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13	UNIV CAL-LOS ANGELES	M M MELLOTT	HQ	C T RUSSELL	NAGW 2067	2385
13	UNIV CAL-LOS ANGELES	R D MCPETERS	HQ	R P TURCO	NAGW 2183	2389
13	UNIV CAL-LOS ANGELES	M M MELLOTT	HQ	R PELLAT	NAGW 2620	2402
13	UNIV CAL-LOS ANGELES	B M CARPENTER	HQ	S J PUTTERMAN	NAGW 2842	2404
13	UNIV CAL-LOS ANGELES	M M MELLOTT	HQ	C C WU	NAGW 2848	2405
13	UNIV CAL-LOS ANGELES	D L REASONER	HQ	R P TURCO	NAGW 2853	2406
13	UNIV CAL-LOS ANGELES	E C WHIPPLE	HQ	D D BARBOSA	NAGW 3190	2415
13	UNIV CAL-LOS ANGELES	H C BRINTON	HQ	J F KERRIDGE	NAGW 3349	2418
13	UNIV CAL-LOS ANGELES	E C WHIPPLE	HQ	R M THORNE	NAGW 3476	2421
13	UNIV CAL-LOS ANGELES	F C WHIPPLE	HQ	C T RUSSELL	NAGW 3477	2422
13	UNIV CAL-LOS ANGELES	C R STOKER	ARC	G SCHUBERT	NCA 2-689	2441
13	UNIV CAL-LOS ANGELES	F C OWENS	HQ	M G KUELSON	NGT 00-050-618	2451
13	UNIV CAL-LOS ANGELES	J K ALEXANDER	HQ	D A PAIGE	NGT 00-051-000	2453
13	UNIV CAL-LOS ANGELES	D HOLLAND	HQ	W GEKELMAN	NGT 00-051-148	2454
13	UNIV CAL-SAN DIEGO	T J BIRMINGHAM	GSFC	N OMIDI	NAG 5-1492	2494
13	UNIV CAL-SAN DIEGO	M M MELLOTT	HQ	E C WHIPPLE	NAGW 1150	2524
13	UNIV CAL-SAN DIEGO	M M MELLOTT	HQ	N OMIDI	NAGW 1806	2527
13	UNIV CAL-SAN DIEGO	W V JONES	HQ	B V JACKSON	NAGW 2002	2532
13	UNIV CAL-SAN DIEGO	W J WAGNER	HQ	H HUDSON	NAGW 2591	2541
13	UNIV CAL-SAN DIEGO	W V JONES	HQ	R E LINGENFELTER	NAGW 2609	2542
13	UNIV CAL-SAN DIEGO	M M MELLOTT	HQ	D KRAUSS-VARBAN	NAGW 2618	2543
13	UNIV CAL-SAN DIEGO	E C WHIPPLE	HQ	J LINKER	NAGW 3179	2559
13	UNIV CAL-SAN DIEGO	R K BOGUE	ARC	R J CATTOLICA	NCC 2-718	2582
13	UNIV CAL-SAN DIEGO	M D DESCH	HQ	C E MCILWAIN	NGL 5-5007	2589
13	UNIV CAL-SAN DIEGO	F C OWENS	HQ	B JONES	NGT 00-050-776	2593
13	UNIV CAL-SAN DIEGO	J K ALEXANDER	HQ	K QUEST	NGT 00-050-935	2595
13	UNIV CAL-SAN DIEGO	D HOLLAND	HQ	D A MENDIS	NGT 00-051-060	2596
13	UNIV CAL-SAN DIEGO	G SOFFEN	GSFC	T M O'NEIL	NGT 00-070-218	2599
13	U CAL-SANTA BARBARA	T A MAXWELL	HQ	S J PEALE	NAGW 2061	2631
13	U CAL-SANTA BARBARA	L KALNZIENSKI	HQ	P LUBIN	NAGW 2188	2632
13	U CAL-SANTA BARBARA	B M CARPENTER	HQ	L G LEAL	NAGW 2840	2639
13	U CAL-SANTA BARBARA	M C LEE	HQ	G AHLERS	NAGW 3325	2643
13	U CAL-SANTA BARBARA	R E MURPHY	HQ	P M LUBIN	NAGW 3350	2644
13	U CAL-SANTA BARBARA	D HOLLAND	HQ	P M LUBIN	NGT 00-050-780	2662
13	U CAL-SANTA CRUZ	G CLAYTON	HQ	S E WOOSLEY	NAGW 1273	2672
13	UNIV SAN FRANCISCO	T A PARNELL	MSFC	E V BENTON	NAG 8-168	2700
13	UNIV SAN FRANCISCO	T A PARNELL	MSFC	E V BENTON	NAG 8-282	2701
13	UNIV SAN FRANCISCO	D S NACHTWEY	JSC	E V BENTON	NAG 9-235	2703
13	UNIV SOUTHERN CALIF	L E LASHER	ARC	D JUDGE	NAG 2-146	2705
13	UNIV SOUTHERN CALIF	J D BOHLIN	HQ	E J RHODES	NAGW 13	2713
13	UNIV SOUTHERN CALIF	W V JONES	HQ	D L JUDGE	NAGW 2677	2721
13	UNIV SOUTHERN CALIF	L J EARLY	GSFC	D L JUDGE	NSG-5108	2743
13	COL SCHOOL OF MINES	S R LANGHOFF	ARC	M EBERHART	NAG 2-849	2746
13	COLORADO ST U	V K RAWLIN	LERC	P J WILBUR	NAG 3-1206	2755
13	UNIV COL-BOULDER	L J EARLY	GSFC	G J ROTTMAN	NAG 5-633	2830
13	UNIV COL-BOULDER	L J EARLY	GSFC	T N WOODS	NAG 5-676	2831
13	UNIV COL-BOULDER	L J EARLY	GSFC	C A BARTH	NAG 5-698	2832
13	UNIV COL-BOULDER	T J BIRMINGHAM	GSFC	J T MOORE	NAG 5-2256	2876
13	UNIV COL-BOULDER	L J EARLY	GSFC	D C FRITTS	NAG 5-5014	2884
13	UNIV COL-BOULDER	J KAUFMAN	MSFC	J HART	NAG 8-190	2885
13	UNIV COL-BOULDER	M J KAVAVA	MSFC	R G FREHLICH	NAG 8-253	2887
13	UNIV COL-BOULDER	M M MELLOTT	HQ	T W SPEISER	NAGW 1176	2903
13	UNIV COL-BOULDER	J D BOHLIN	HQ	A L KIPLINGER	NAGW 1462	2909
13	UNIV COL-BOULDER	J D BOHLIN	HQ	G A DULK	NAGW 1994	2921
13	UNIV COL-BOULDER	M M MELLOTT	HQ	S C SOLOMON	NAGW 2116	2924
13	UNIV COL-BOULDER	D P HUENEMOERDER	HQ	G CLAYTON	NAGW 2338	2931
13	UNIV COL-BOULDER	W WAGNER	HQ	J L LINSKY	NAGW 2568	2938
13	UNIV COL-BOULDER	M M MELLOTT	HQ	F BAGENAL	NAGW 2684	2943
13	UNIV COL-BOULDER	W J WAGNER	HQ	F BAGENAL	NAGW 2754	2948
13	UNIV COL-BOULDER	D L REASONER	HQ	C BARTH	NAGW 2825	2949

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13	UNIV COL-BOULDER	D L REASONER	HQ	T J ROWELL	NAGW 2851	2950
13	UNIV COL-BOULDER	M M MELLOTT	HQ	I DOXAS	NAGW 2968	2957
13	UNIV COL-BOULDER	W J WAGNER	HQ	J TOOMRE	NAGW 2980	2959
13	UNIV COL-BOULDER	W J WAGNER	HQ	K GAYLEY	NAGW 2994	2961
13	UNIV COL-BOULDER	W J WAGNER	HQ	A KIPLINGER	NAGW 3030	2964
13	UNIV COL-BOULDER	E C WHIPPLE	HQ	M HORANYI	NAGW 3355	2974
13	UNIV COL-BOULDER	M M MELLOTT	HQ	M CODRESCU	NAGW 3530	2979
13	UNIV COL-BOULDER	J MCGUIRE	GSFC	G G ROTTMAN	NAS 5-30683	2990
13	UNIV COL-BOULDER	F C OWENS	HQ	C D GARMANY	NGT 00-050-483	3032
13	UNIV COL-BOULDER	F C OWENS	HQ	T P SNOW	NGT 00-050-515	3033
13	UNIV COL-BOULDER	F C OWENS	HQ	G BORN	NGT 00-050-623	3036
13	UNIV COL-BOULDER	F C OWENS	HQ	T P SNOW	NGT 00-050-660	3037
13	UNIV COL-BOULDER	G SOFFEN	GSFC	R A MCCRAY	NGT 00-050-899	3048
13	UNIV COL-BOULDER	J ALEXANDER	HQ	F BAGENAL	NGT 00-050-916	3051
13	UNIV COL-BOULDER	J K ALEXANDER	HQ	W C CASH	NGT 00-050-955	3055
13	UNIV COL-BOULDER	J K ALEXANDER	HQ	E ZWEIBEL	NGT 00-050-958	3056
13	UNIV COL-BOULDER	F C OWENS	HQ	J T STOCKE	NGT 00-070-220	3066
13	UNIV COL-BOULDER	D S SPICER	HQ	J TOOMRE	NSG-7511	3074
13	YALE UNIV	S H MOSELEY	GSFC	D E PROBER	NAG 5-1244	3118
13	YALE UNIV	T J BIRMINGHAM	GSFC	P DEMARQUE	NAG 5-1486	3119
13	YALE UNIV	F C OWENS	HQ	D E PROBER	NGT 00-050-586	3134
13	YALE UNIV	F C OWENS	HQ	L J GUIDO	NGT 00-050-832	3138
13	YALE UNIV	C HIX	JPL	D PROBER	NGT 00-051-037	3142
13	UNIV DELAWARE	R A WILKINSON	LERC	E W KALER	NAG 3-1424	3147
13	UNIV DELAWARE	W V JONES	HQ	P EVENSON	NAGW 1040	3150
13	UNIV DELAWARE	M M MELLOTT	HQ	T K GAISER	NAGW 1644	3151
13	HOWARD UNIV	W B SULLIVAN	GSFC	A N THORPE	NAG 5-1057	3205
13	HOWARD UNIV	S E MASSENBERG	HQ	S J GATES	NAGW 2950	3209
13	AMERICAN UNIV	F C OWENS	HQ	R B KAY	NGT 00-050-649	3218
13	AMERICAN UNIV	G SOFFEN	GSFC	R B KAY	NGT 00-051-032	3219
13	CATHOLIC UNIV	F C OWENS	HQ	F BRUHWELER	NGT 00-070-043	3232
13	FLA INTERNATIONAL U	F SIX	MSFC	W V VAN HAMME	NAG 8-272	3247
13	FLORIDA A&M UNIV	A TEMKIN	GSFC	C A WEATHERFORD	NAG 5-738	3254
13	FLORIDA INST OF TECH	S J PADDACK	GSFC	N Y MISCONI	NAG 5-1497	3281
13	FLORIDA INST OF TECH	S L LEHOCZKY	MSFC	J D PATTERSON	NAG 8-781	3283
13	FLORIDA INST OF TECH	S L LEHOCZKY	MSFC	J D PATTERSON	NAG 8-941	3284
13	UNIV OF CENTRAL FLA	L R MCMASTER	LARC	C M STICKLEY	NAG 1-1322	3340
13	UNIV FLORIDA	A L FRIPP	LARC	T J ANDERSON	NAG 1-609	3368
13	UNIV FLORIDA	H S BLOOMFIELD	LERC	N J DIAZ	NAG 3-26314	3405
13	UNIV MIAMI	W I SCALLION	LARC	Y C THIO	NAG 1-1199	3419
13	UNIV SOUTH FLORIDA	A J ZUCKERWAR	LARC	R S CHANG	NAS 1-19508	3459
13	UNIV SOUTH FLORIDA	E PRIOR	LARC	D K KILLINGER	NGT 00-050-979	3464
13	CLARK ATLANTA UNIV	A F HEPP	LERC	C R HANDY	NCC 3-286	3474
13	GEORGIA INST OF TECH	S K NASH-STEVENSON	MSFC	E O RAUSCH	NAG 8-869	3518
13	GEORGIA INST OF TECH	F C OWENS	HQ	M A HAYES	NGT 00-050-535	3550
13	UNIV HAWAII-MANOA	B PALASZEWSKI	LERC	J R GAINES	NAG 3-1083	3615
13	UNIV HAWAII-MANOA	J D BOHLIN	HQ	C LINDSEY	NAGW 723	3642
13	UNIV HAWAII-MANOA	R V STACHNIK	HQ	D N HALL	NAGW 755	3643
13	UNIV HAWAII-MANOA	J D BOHLIN	HQ	A N MCCLYMONT	NAGW 864	3645
13	UNIV HAWAII-MANOA	J D BOHLIN	HQ	R C CANFIELD	NAGW 1454	3651
13	UNIV HAWAII-MANOA	J D BOHLIN	HQ	R C CANFIELD	NAGW 1542	3653
13	UNIV HAWAII-MANOA	J D BOHLIN	HQ	B J LABONTE	NAGW 1698	3654
13	UNIV HAWAII-MANOA	J D BOHLIN	HQ	F Q ORRALL	NAGW 1699	3655
13	UNIV HAWAII-MANOA	W J WAGNER	HQ	A MCCLYMONT	NAGW 2969	3672
13	NORTHWESTERN UNIV	J ALEXANDER	HQ	J B KETTERSON	NGT 00-050-907	3773
13	UNIV CHICAGO	L E LASHER	ARC	J A SIMPSON	NAG 2-380	3781
13	UNIV CHICAGO	G BULLOCK	GSFC	M E WERDENBOCK	NAG 5-308	3785
13	UNIV CHICAGO	T J BIRMINGHAM	GSFC	R ROSNER	NAG 5-1485	3792
13	UNIV CHICAGO	J R FISCHER	GSFC	R ROSNER	NAG 5-2218	3801
13	UNIV CHICAGO	I D BROWNE	JSC	J V SMITH	NAG 9-47	3805

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13	UNIV CHICAGO	G C CLAYTON	HQ	D Q LAMB	NAGW 1284	3812
13	UNIV CHICAGO	G C CLAYTON	HQ	L M HOBBS	NAGW 1475	3814
13	UNIV CHICAGO	J D BOHLIN	HQ	R ROSNER	NAGW 1685	3818
13	UNIV CHICAGO	W V JONES	HQ	J A SIMPSON	NAGW 1981	3821
13	UNIV CHICAGO	W V JONES	HQ	P MEYER	NAGW 1982	3822
13	UNIV CHICAGO	W V JONES	HQ	D MULLER	NAGW 1995	3823
13	UNIV CHICAGO	J D BOHLIN	HQ	E N PARKER	NAGW 2122	3825
13	UNIV CHICAGO	W V JONES	HQ	J A SIMPSON	NAGW 2368	3827
13	UNIV CHICAGO	H C BRINTON	HQ	R N CLAYTON	NAGW 3345	3841
13	UNIV CHICAGO	J M DAVIS	MSFC	R ROSNER	NCC 8-7	3850
13	UNIV CHICAGO	F C OWENS	HQ	M S TURNER	NGT 00-050-453	3853
13	UNIV CHICAGO	F C OWENS	HQ	M S TURNER	NGT 00-050-469	3855
13	UNIV CHICAGO	F C OWENS	HQ	D Q LAMB	NGT 00-050-617	3857
13	UNIV CHICAGO	F C OWENS	HQ	R G KRON	NGT 00-050-677	3858
13	UNIV CHICAGO	F C OWENS	HQ	E N PARKER	NGT 00-050-770	3859
13	UNIV CHICAGO	F C OWENS	HQ	S SWORDY	NGT 00-050-797	3861
13	UNIV CHICAGO	J K ALEXANDER	HQ	D N SCHRAMM	NGT 00-050-993	3864
13	UNIV CHICAGO	J ALEXANDER	HQ	M TURNER	NGT 00-050-997	3865
13	UNIV CHICAGO	D HOLLAND	HQ	D MULLER	NGT 00-051-066	3867
13	UNIV ILLINOIS URBANA	R STACHNIK	HQ	S CASERTANO	NAGW 2945	3930
13	UNIV ILLINOIS URBANA	F C OWENS	HQ	S A LAMB	NGT 00-070-041	3958
13	INDIANA U-BLOOMINGTN	N GEHRELS	GSFC	D FRIESEL	NAG 5-1394	3974
13	INDIANA U-BLOOMINGTN	M M MELLOTT	HQ	R M HEINZ	NAGW 1035	3977
13	PURDUE UNIV	G SOFFEN	GSFC	T J MOFFETT	NGT 00-050-937	4058
13	ROSE-HULMAN I OF T	A D PLINE	LERC	H P STAHL	NAG 3-1300	4067
13	SAINT MARYS COLLEGE	M V ZELLER	LERC	J J BELLINA	NCC 3-200	4069
13	IOWA ST U	G C CLAYTON	HQ	L A WILLSON	NAGW 1364	4115
13	UNIV IOWA	S A CURTIS	GSFC	R ANDERSON	NAG 5-1120	4147
13	UNIV IOWA	T J BIRMINGHAM	GSFC	I H CAIRNS	NAG 5-1483	4149
13	UNIV IOWA	M H ACUNA	GSFC	J D SCUDDER	NAG 5-2231	4154
13	UNIV IOWA	M ACONA	GSFC	R R ANDERSON	NAG 5-2346	4155
13	UNIV IOWA	G K PARKS	HQ	W S KURTH	NAGW 1539	4157
13	UNIV IOWA	M M MELLOTT	HQ	S R SPANGLER	NAGW 1594	4158
13	UNIV IOWA	G K PARKS	HQ	L A FRANK	NAGW 1631	4159
13	UNIV IOWA	M M MELLOTT	HQ	J G LYON	NAGW 1653	4160
13	UNIV IOWA	M MELLOTT	HQ	J G LYON	NAGW 1668	4161
13	UNIV IOWA	M M MELLOTT	HQ	M D'ANGELO	NAGW 1791	4163
13	UNIV IOWA	M M MELLOTT	HQ	I H CAIRNS	NAGW 2040	4164
13	UNIV IOWA	M M MELLOTT	HQ	J G LYON	NAGW 2626	4167
13	UNIV IOWA	E C WHIPPLE	HQ	C HUANG	NAGW 2847	4168
13	UNIV IOWA	W V JONES	HQ	I CAIRNS	NAGW 3461	4171
13	UNIV IOWA	E C WHIPPLE	HQ	A M PERSOON	NAGW 3576	4172
13	UNIV IOWA	F WAINSCOTT	GSFC	D A GURNETT	NAS 5-26857	4173
13	UNIV IOWA	J GALLOWAY	GSFC	L FRANK	NAS 5-30316	4175
13	UNIV IOWA	D CROSBY	GSFC	D A GURNETT	NAS 5-30371	4176
13	UNIV KANSAS	M M MELLOTT	HQ	T E CRAVENS	NAGW 1559	4206
13	UNIV KANSAS	D P HUENEMOERDER	HQ	A L MCLOTT	NAGW 2455	4209
13	UNIV KANSAS	R STACHNIK	HQ	A L MELOTT	NAGW 2923	4210
13	UNIV KANSAS	F C OWENS	HQ	T E CRAVENS	NGT 00-050-784	4231
13	EASTERN KENTUCKY U	V O HEINEN	LERC	J D COOK	NAG 3-1843	4241
13	LA ST U-BATON ROUGE	M M MELLOTT	HQ	J P WEFEL	NAGW 1027	4265
13	LA ST U-BATON ROUGE	M M MELLOTT	HQ	T G GUZIK	NAGW 1526	4266
13	LA ST U-BATON ROUGE	T W PERRY	HQ	T G GUZIK	NAGW 2607	4272
13	LA ST U-BATON ROUGE	J D BOHLIN	HQ	M L CHERRY	NAGW 3289	4274
13	LA ST U-BATON ROUGE	J D BOHLIN	HQ	M L CHERRY	NAGW 3560	4275
13	LA ST U-BATON ROUGE	G SOFFEN	GSFC	R C SVOBODA	NGT 00-050-927	4280
13	JOHNS HOPKINS UNIV	L J EARLY	GSFC	P D FELDMAN	NAG 5-619	4328
13	JOHNS HOPKINS UNIV	S A CURTIS	GSFC	R A GREENWALD	NAG 5-1099	4330
13	JOHNS HOPKINS UNIV	G D BULLOCK	GSFC	A T LUI	NAG 5-1673	4344
13	JOHNS HOPKINS UNIV	G BULLOCK	GSFC	D SIBECK	NAG 5-1674	4345

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13	JOHNS HOPKINS UNIV	T R KALLMAN	GSFC	J KROLIK	NAG 5-1732	4348
13	JOHNS HOPKINS UNIV	L J EARLY	GSFC	J H YEE	NAG 5-5016	4369
13	JOHNS HOPKINS UNIV	M M MELLOTT	HQ	T A PSTEMRA	NAGW 1650	4373
13	JOHNS HOPKINS UNIV	M M MELLOTT	HQ	K B BAKER	NAGW 2059	4378
13	JOHNS HOPKINS UNIV	W J WAGNER	HQ	D M RUST	NAGW 2416	4383
13	JOHNS HOPKINS UNIV	M M MELLOTT	HQ	D G MITCHELL	NAGW 2583	4387
13	JOHNS HOPKINS UNIV	W V JONES	HQ	R B DECKER	NAGW 2619	4388
13	JOHNS HOPKINS UNIV	M M MELLOTT	HQ	B H MAUK	NAGW 2691	4389
13	JOHNS HOPKINS UNIV	D L REASONER	HQ	P J NEWELL	NAGW 2854	4392
13	JOHNS HOPKINS UNIV	E C WHIPPLE	HQ	B J ANDERSON	NAGW 3052	4397
13	JOHNS HOPKINS UNIV	E C WHIPPLE	HQ	K TAKAHASHI	NAGW 3058	4399
13	JOHNS HOPKINS UNIV	E C WHIPPLE	HQ	A Y LUI	NAGW 3449	4410
13	JOHNS HOPKINS UNIV	E C WHIPPLE	HQ	D G SIBECK	NAGW 3523	4411
13	UNIV MD-COLLEGE PARK	R A WILKINSON	LERC	R A FERRELL	NAG 3-1180	4462
13	UNIV MD-COLLEGE PARK	R A WILKINSON	LERC	R A FERRELL	NAG 3-1395	4464
13	UNIV MD-COLLEGE PARK	S CURTIS	GSFC	S GLOECKNER	NAG 5-716	4469
13	UNIV MD-COLLEGE PARK	S A CURTIS	GSFC	K PAPADOPOULOS	NAG 5-1101	4477
13	UNIV MD-COLLEGE PARK	K W OGILVIE	GSFC	M A COPLAN	NAG 5-1129	4478
13	UNIV MD-COLLEGE PARK	R A HOFFMAN	GSFC	M A COPLAN	NAG 5-1149	4480
13	UNIV MD-COLLEGE PARK	D S SPICER	GSFC	J M FINN	NAG 5-1356	4485
13	UNIV MD-COLLEGE PARK	J E ALLEN	GSFC	C C DAVIS	NAG 5-1427	4486
13	UNIV MD-COLLEGE PARK	M H ACUNA	GSFC	C C GOODRICH	NAG 5-1825	4498
13	UNIV MD-COLLEGE PARK	Y FLOM	GSFC	M TURCHINSKAYA	NAG 5-1890	4502
13	UNIV MD-COLLEGE PARK	J C BRASUNAS	GSFC	T VENKATESAN	NAG 5-1979	4506
13	UNIV MD-COLLEGE PARK	J D BOHLIN	HQ	G GLOECKLER	NAGW 101	4527
13	UNIV MD-COLLEGE PARK	J D BOHLIN	HQ	J M FINN	NAGW 1346	4533
13	UNIV MD-COLLEGE PARK	J D BOHLIN	HQ	M R KUNDU	NAGW 1541	4535
13	UNIV MD-COLLEGE PARK	M M MELLOTT	HQ	T E EASTMAN	NAGW 1848	4539
13	UNIV MD-COLLEGE PARK	W V JONES	HQ	G M MASON	NAGW 1990	4544
13	UNIV MD-COLLEGE PARK	W V JONES	HQ	J A EARL	NAGW 2062	4545
13	UNIV MD-COLLEGE PARK	M M MELLOTT	HQ	J F DRAKE	NAGW 2079	4546
13	UNIV MD-COLLEGE PARK	M M MELLOTT	HQ	W BENESCH	NAGW 2168	4547
13	UNIV MD-COLLEGE PARK	J D BOHLIN	HQ	M R KUNDU	NAGW 2172	4548
13	UNIV MD-COLLEGE PARK	W V JONES	HQ	F B MCDONALD	NAGW 2504	4553
13	UNIV MD-COLLEGE PARK	W J WAGNER	HQ	N GOPALSWAMY	NAGW 2760	4560
13	UNIV MD-COLLEGE PARK	W J WAGNER	HQ	M R KUNDU	NAGW 3080	4567
13	UNIV MD-COLLEGE PARK	E C WIPPLE	HQ	R LOPEZ	NAGW 3222	4571
13	UNIV MD-COLLEGE PARK	W V JONES	HQ	E SEO	NAGW 3526	4576
13	UNIV MD-COLLEGE PARK	E C WHIPPLE	HQ	A SHARMA	NAGW 3596	4578
13	UNIV MD-COLLEGE PARK	R W LAUVER	LERC	R W GAMMON	NAS 3-25370	4584
13	UNIV MD-COLLEGE PARK	W R NAGEL	GSFC	G M MASON	NAS 5-30704	4587
13	UNIV MD-COLLEGE PARK	A K HARDING	GSFC	J TRASCO	NCC 5-54	4605
13	UNIV MD-COLLEGE PARK	F C OWENS	HQ	D C HAMILTON	NGT 00-050-658	4613
13	UNIV MD-COLLEGE PARK	F C OWENS	HQ	R RAMATY	NGT 00-050-721	4615
13	UNIV MD-COLLEGE PARK	G SOFFEN	GSFC	R RAMATY	NGT 00-050-763	4618
13	UNIV MD-COLLEGE PARK	J K ALEXANDER	HQ	A GALVIN	NGT 00-050-957	4623
13	BOSTON COLLEGE	P BROCKMAN	LARC	B DIBARTOLO	NAG 1-955	4635
13	BOSTON COLLEGE	M L GOLDSTEIN	GSFC	T A FRITZ	NAG 5-2266	4637
13	BOSTON COLLEGE	G ASRAR	HQ	A H STRAHLER	NAGW 2082	4638
13	BOSTON COLLEGE	J K ALEXANDER	HQ	R L CORNVILLANN	NGT 00-050-996	4639
13	BOSTON UNIV	L J EARLY	GSFC	M MENDILLO	NAG 5-640	4641
13	BOSTON UNIV	R H PLESS	GSFC	S CHAKRABARTI	NAG 5-690	4642
13	BOSTON UNIV	L J EARLY	GSFC	S CHAKRABARTI	NAG 5-694	4643
13	BOSTON UNIV	L J EARLY	GSFC	S CHAKRABARTI	NAG 5-695	4644
13	BOSTON UNIV	D N BAKER	GSFC	A MAVRETIC	NAG 5-1815	4646
13	BOSTON UNIV	M ACUNA	GSFC	T FRITZ	NAG 5-2115	4650
13	BOSTON UNIV	M M MELLOTT	HQ	W J HUGHES	NAGW 1627	4653
13	BOSTON UNIV	M M MELLOTT	HQ	M MENDILLO	NAGW 1629	4654
13	BOSTON UNIV	W V JONES	HQ	S P AHLEN	NAGW 2138	4655
13	BOSTON UNIV	M M MELLOTT	HQ	G M ERICKSON	NAGW 2627	4656

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13	BOSTON UNIV	M M MELLOTT	HQ	M MENDILLO	NAGW 2679	4657
13	BOSTON UNIV	E C WHIPPLE	HQ	G M ERICKSON	NAGW 2856	4658
13	HARVARD UNIV	J D BOHLIN	HQ	W H PARKINSON	NAGW 1687	4703
13	HARVARD UNIV	W J WAGNER	HQ	W H PARKINSON	NAGW 2570	4707
13	HARVARD UNIV	B M CARPENTER	HQ	F A SPAEPEN	NAGW 2838	4709
13	HARVARD UNIV	M C LEE	HQ	F SPAEPEN	NAGW 3509	4716
13	HARVARD UNIV	F C OWENS	HQ	I I SHAPIRO	NGT 00-050-699	4740
13	HARVARD UNIV	J K ALEXANDER	HQ	J E GRINDLAY	NGT 00-050-999	4748
13	HARVARD UNIV	D HOLLAND	HQ	R P KIRSHNER	NGT 00-051-093	4751
13	MASS INST OF TECH	R V HESS	LARC	H P JENSSEN	NAG 1-924	4756
13	MASS INST OF TECH	S WELCH	LARC	C WARDE	NAG 1-996	4759
13	MASS INST OF TECH	C R MCCREIGHT	ARC	Q HU	NAG 2-693	4772
13	MASS INST OF TECH	R F BENSON	GSFC	M C LEE	NAG 5-1055	4805
13	MASS INST OF TECH	T J BIRMINGHAM	GSFC	T CHANG	NAG 5-2255	4835
13	MASS INST OF TECH	R DARTY	MSFC	M FLEMINGS	NAG 8-865	4844
13	MASS INST OF TECH	R C DARTY	MSFC	M FLEMINGS	NAG 8-971	4852
13	MASS INST OF TECH	R C DARTY	MSFC	H E WITT	NAG 8-980	4853
13	MASS INST OF TECH	M M MELLOTT	HQ	T S CHANG	NAGW 1532	4873
13	MASS INST OF TECH	M M MELLOTT	HQ	A J LAZARUS	NAGW 1550	4875
13	MASS INST OF TECH	G ASRAR	HQ	J A KONG	NAGW 1617	4877
13	MASS INST OF TECH	M M MELLOTT	HQ	A BERS	NAGW 2048	4887
13	MASS INST OF TECH	J C LING	HQ	B MONTGOMERY	NAGW 2424	4899
13	MASS INST OF TECH	W J WAGNER	HQ	P KUMAR	NAGW 3511	4919
13	MASS INST OF TECH	F R CHANG-DIAZ	JSC	T F YANG	NAS 9-18372	4940
13	MASS INST OF TECH	D GILMAN	HQ	G RICKER	NASW 4690	4943
13	MASS INST OF TECH	F C OWENS	HQ	T MADDEN	NGT 00-050-513	4964
13	MASS INST OF TECH	F C OWENS	HQ	H BRADT	NGT 00-050-655	4965
13	MASS INST OF TECH	F C OWENS	HQ	S MEYER	NGT 00-050-720	4968
13	MASS INST OF TECH	J ALEXANDER	HQ	S MEYER	NGT 00-050-908	4971
13	MASS INST OF TECH	F C OWENS	HQ	J W BELCHER	NGT 00-070-158	4977
13	TUFTS UNIV	W J WAGNER	HQ	K LANG	NAGW 2383	4992
13	UNIV MASS-AMHERST	E J CONWAY	LARC	N G ANDERSON	NAG 1-1148	4998
13	UNIV MASS-AMHERST	M BICAY	HQ	N ERICKSON	NAGW 2430	5019
13	HOPE COLLEGE	F SIX	MSFC	P L GONTHIER	NAG 8-263	5067
13	MICHIGAN ST U	J D BOHLIN	HQ	R F STEIN	NAGW 1695	5075
13	MICHIGAN ST U	J K ALEXANDER	HQ	G M CRAWLEY	NAGW 3214	5076
13	MICHIGAN TECH U	H L NGUYEN	LERC	S L YANG	NAG 3-1109	5086
13	MICHIGAN TECH U	A W MUELLER	LARC	J C ROGERS	NCC 1-145	5093
13	U MICHIGAN-ANN ARBOR	G L MADDREA	LARC	V J ABREU	NAG 1-1331	5109
13	U MICHIGAN-ANN ARBOR	L J EARLY	GSFC	J T CLARKE	NAG 5-653	5135
13	U MICHIGAN-ANN ARBOR	L J EARLY	WFF	J H YEE	NAG 5-662	5136
13	U MICHIGAN-ANN ARBOR	T J BIRMINGHAM	GSFC	T I GOMBOSI	NAG 5-1500	5140
13	U MICHIGAN-ANN ARBOR	J O'BRIEN	GSFC	T L KILLEEN	NAG 5-1622	5144
13	U MICHIGAN-ANN ARBOR	D FAIRFIELD	GSFC	C R CLAUER	NAG 5-2228	5152
13	U MICHIGAN-ANN ARBOR	L J EARLY	GSFC	W E SHARP	NAG 5-5003	5154
13	U MICHIGAN-ANN ARBOR	M MELLOTT	HQ	T L KILLEEN	NAGW 1535	5166
13	U MICHIGAN-ANN ARBOR	M M MELLOTT	HQ	A F NAGY	NAGW 1619	5167
13	U MICHIGAN-ANN ARBOR	M M MELLOTT	HQ	G TARLE	NAGW 1642	5168
13	U MICHIGAN-ANN ARBOR	M M MELLOTT	HQ	V J ABREU	NAGW 1783	5172
13	U MICHIGAN-ANN ARBOR	M M MELLOTT	HQ	D E SISKIND	NAGW 2006	5177
13	U MICHIGAN-ANN ARBOR	M M MELLOTT	HQ	E G FONTHEIM	NAGW 2008	5178
13	U MICHIGAN-ANN ARBOR	M M MELLOTT	HQ	T GOMBOSI	NAGW 2162	5183
13	U MICHIGAN-ANN ARBOR	M M MELLOTT	HQ	P M BANKS	NAGW 2350	5186
13	U MICHIGAN-ANN ARBOR	M M MELLOTT	HQ	T L KILLEEN	NAGW 3457	5197
13	U MICHIGAN-ANN ARBOR	D HIGGINS	MSFC	P BANKS	NAS 8-38772	5213
13	U MICHIGAN-ANN ARBOR	J FERRANTE	LERC	D J SROLOVITZ	NCC 3-214	5224
13	U MICHIGAN-ANN ARBOR	L J EARLY	GSFC	W E SHARP	NGR23-5360	5225
13	U MICHIGAN-ANN ARBOR	F C OWENS	HQ	T I GOMBOSI	NGT 00-050-368	5229
13	U MICHIGAN-ANN ARBOR	B SWINFORD	MSFC	J U KOZYRA	NGT 00-051-180	5247
13	AUGSBURG COLLEGE	M M MELLOTT	HQ	M J ENGBRETSON	NAGW 1567	5263

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13	U MINN-MNPLS-ST PAUL	J DUDENHOEFER	LERC	T W SIMON	NAG 3-598	5275
13	U MINN-MNPLS-ST PAUL	L J EARLY	GSFC	L J CAHILL	NAG 6-11	5285
13	U MINN-MNPLS-ST PAUL	W V JONES	HQ	C J WADDINGTON	NAGW 1934	5294
13	U MINN-MNPLS-ST PAUL	W V JONES	HQ	C J WADDINGTON	NAGW 2004	5296
13	U MINN-MNPLS-ST PAUL	W V JONES	HQ	T W JONES	NAGW 2548	5299
13	U MINN-MNPLS-ST PAUL	M M MELLOTT	HQ	R L LYSAK	NAGW 2690	5301
13	U MINN-MNPLS-ST PAUL	W V JONES	HQ	C J WADDINGTON	NAGW 3014	5302
13	U MINN-MNPLS-ST PAUL	C RAY	HQ	J W HALEY	NAGW 3324	5306
13	U MINN-MNPLS-ST PAUL	H C BRINTON	HQ	R O PEPIN	NAGW 3336	5307
13	U MINN-MNPLS-ST PAUL	S BENNER	GSFC	K MAUERSBERGER	NAS 5-32454	5311
13	U MINN-MNPLS-ST PAUL	F C OWENS	HQ	J ALMLOF	NGT 00-050-478	5323
13	U MINN-MNPLS-ST PAUL	F C OWENS	HQ	P J KELLOGG	NGT 00-050-684	5325
13	U MINN-MNPLS-ST PAUL	B CARPENTER	HQ	J W HALLEY	NGT 00-051-090	5328
13	U MINN-MNPLS-ST PAUL	L J EARLY	GSFC	P J KELLOGG	NSG-5373	5331
13	UNIV MISSISSIPPI-U	W L WILLSHIRE	LARC	H E BASS	NAG 1-1076	5368
13	UNIV MISSISSIPPI-U	W L WILLSHIRE	LARC	H E BASS	NAG 1-1460	5370
13	UNIV MISSOURI-ROLLA	B M CARPENTER	HQ	D E DAY	NAGW 2846	5395
13	WASHINGTON UNIV	E C ETHRIDGE	MSFC	K F KELTON	NAG 8-873	5405
13	WASHINGTON UNIV	J J MCMAHON	JSC	B SZABO	NAG 9-622	5410
13	WASHINGTON UNIV	M ZOLENSKY	JSC	E ZINNER	NAG 9-684	5412
13	WASHINGTON UNIV	J LING	HQ	J KLARMARN	NAGW 1922	5418
13	WASHINGTON UNIV	W V JONES	HQ	J I KATZ	NAGW 2028	5419
13	WASHINGTON UNIV	R STACHNIK	HQ	J I KATZ	NAGW 2918	5429
13	WASHINGTON UNIV	W V JONES	HQ	J KLARMANN	NAGW 3013	5431
13	WASHINGTON UNIV	F C OWENS	HQ	W B MCKINNON	NGT 00-050-629	5448
13	WASHINGTON UNIV	F C OWENS	HQ	C M HOHENBERG	NGT 00-050-675	5449
13	WASHINGTON UNIV	F C OWENS	HQ	J KLARMANN	NGT 00-050-676	5450
13	WASHINGTON UNIV	F C OWENS	HQ	J KLARMANN	NGT 00-050-789	5451
13	WASHINGTON UNIV	D A HOLLAND	HQ	K F KELTON	NGT 00-051-061	5452
13	WASHINGTON UNIV	P H JOHNSTON	LARC	J G MILLER	NSG-1601	5453
13	EASTERN MONTANA UNIV	F SIX	MSFC	A F BENTLEY	NAG 8-262	5454
13	U NEBRASKA-LINCOLN	F A CUCINOTTA	LARC	R KATZ	NAG 1-1447	5476
13	U NEBRASKA-LINCOLN	S A ALTEROVITZ	LERC	J A WOOLLAM	NAG 3-154	5478
13	U NEBRASKA-LINCOLN	J D WARNER	LERC	J A WOOLAM	NAG 3-866	5480
13	U NEBRASKA-LINCOLN	L C LARRY	LERC	J P BARTON	NAG 3-1261	5481
13	DARTMOUTH COLLEGE	L J EARLY	GSFC	J W LABELLE	NAG 5-663	5518
13	DARTMOUTH COLLEGE	S A CURTIS	GSFC	M K HUDSON	NAG 5-1098	5519
13	DARTMOUTH COLLEGE	T J BIRMINGHAM	GSFC	W LOTKO	NAG 5-2252	5524
13	DARTMOUTH COLLEGE	M M MELLOTT	HQ	D C MONTGOMERY	NAGW 710	5527
13	DARTMOUTH COLLEGE	M M MELLOTT	HQ	M K HUDSON	NAGW 1652	5528
13	DARTMOUTH COLLEGE	M M MELLOTT	HQ	W LOTKO	NAGW 1824	5529
13	DARTMOUTH COLLEGE	D L REASONER	HQ	C FESEN	NAGW 3045	5533
13	DARTMOUTH COLLEGE	J K ALEXANDER	HQ	J LABELLE	NGT 00-050-936	5541
13	UNIV NEW HAMP-DURHAM	J T GALOFARO	LERC	R B TORBERT	NAG 3-1181	5545
13	UNIV NEW HAMP-DURHAM	L J EARLY	GSFC	R B TORBERT	NAG 5-656	5546
13	UNIV NEW HAMP-DURHAM	L J EARLY	GSFC	R L ARNOLDY	NAG 5-678	5547
13	UNIV NEW HAMP-DURHAM	L J EARLY	WFF	R ARNOLDY	NAG 5-692	5548
13	UNIV NEW HAMP-DURHAM	T J BIRMINGHAM	GSFC	J V HOLLWEG	NAG 5-1479	5551
13	UNIV NEW HAMP-DURHAM	L J EARLY	GSFC	R ARNOLDY	NAG 5-5007	5560
13	UNIV NEW HAMP-DURHAM	L J EARLY	GSFC	C KLETZING	NAG 5-5010	5561
13	UNIV NEW HAMP-DURHAM	M M MELLOTT	HQ	W R WEBBER	NAGW 1530	5568
13	UNIV NEW HAMP-DURHAM	M M MELLOTT	HQ	R L KAUFMAN	NAGW 1625	5569
13	UNIV NEW HAMP-DURHAM	J K ALEXANDER	HQ	R B TORBERT	NAGW 2043	5574
13	UNIV NEW HAMP-DURHAM	M M MELLOTT	HQ	T G ONSAGER	NAGW 2505	5576
13	UNIV NEW HAMP-DURHAM	W V JONES	HQ	P A ISENBERG	NAGW 2579	5577
13	UNIV NEW HAMP-DURHAM	E C WHIPPLE	HQ	C KLETZING	NAGW 2697	5579
13	UNIV NEW HAMP-DURHAM	W WAGNER	HQ	P P DUNPHY	NAGW 2734	5581
13	UNIV NEW HAMP-DURHAM	W J WAGNER	HQ	P P DUNPHY	NAGW 2755	5584
13	UNIV NEW HAMP-DURHAM	W J WAGNER	HQ	W T VESTRAND	NAGW 2756	5585
13	UNIV NEW HAMP-DURHAM	W J WAGNER	HQ	D J FORREST	NAGW 2759	5586



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13	UNIV NEW HAMP-DURHAM	W V JONES	HQ	J A LOCKWOOD	NAGW 3454	5591
13	UNIV NEW HAMP-DURHAM	W J WAGNER	HQ	T G FORBES	NAGW 3463	5592
13	UNIV NEW HAMP-DURHAM	W J WAGNER	HQ	E L CHUPP	NAGW 3512	5593
13	UNIV NEW HAMP-DURHAM	E C WHIPPLE	HQ	R B TORBERT	NAGW 3676	5595
13	UNIV NEW HAMP-DURHAM	E C WHIPPLE	HQ	E MOBIUS	NAGW 3723	5597
13	UNIV NEW HAMP-DURHAM	L CHRISTENSEN	GSFC	R TORBERT	NAS 5-30744	5599
13	UNIV NEW HAMP-DURHAM	K OGILVIE	GSFC	R TORBERT	NAS 5-33002	5602
13	UNIV NEW HAMP-DURHAM	F C OWENS	HQ	J M RYAN	NGT 00-050-610	5607
13	UNIV NEW HAMP-DURHAM	F C OWENS	HQ	R HARRISS	NGT 00-050-657	5608
13	UNIV NEW HAMP-DURHAM	J ALEXANDER	HQ	R B TORBETT	NGT 00-050-910	5610
13	UNIV NEW HAMP-DURHAM	G SOFFEN	GSFC	J M RYAN	NGT 00-051-170	5612
13	UNIV NEW HAMP-DURHAM	H S AHLUWALIA	HQ	J HOLLWEG	NSG-7411	5614
13	PRINCETON UNIV	R R ANTCLIFF	LARC	R B MILES	NAG 1-1231	5620
13	PRINCETON UNIV	A T CHAI	LERC	D A SAVILLE	NAG 3-259	5631
13	PRINCETON UNIV	L J EARLY	GSFC	E B JENKINS	NAG 5-616	5640
13	PRINCETON UNIV	G LEVY	HQ	D T WILKINSON	NAGW 1482	5659
13	PRINCETON UNIV	M M MELLOTT	HQ	H OKUDA	NAGW 2538	5666
13	PRINCETON UNIV	F C OWENS	HQ	M DRAGOVAN	NGT 00-050-622	5681
13	PRINCETON UNIV	F C OWENS	HQ	R B MILES	NGT 00-050-826	5682
13	RIDER COLLEGE	L W TOWNSEND	LARC	J W NORBURY	NAG 1-1134	5687
13	RUTGERS ST U-N BRNSK	H C BRINTON	HQ	R H HEWINS	NAGW 3391	5696
13	NEW MEX INST MINING	L J EARLY	GSFC	P PERSSON	NAG 5-5004	5724
13	NEW MEX INST MINING	L J EARLY	GSFC	P PEARSON	NAG 6-104	5725
13	NEW MEX ST U-LAS CR	R E STREITMATTER	GSFC	R L GOLDEN	NAG 5-2070	5738
13	NEW MEX ST U-LAS CR	M M MELLOTT	HQ	R L GOLDEN	NAGW 1418	5748
13	NEW MEX ST U-LAS CR	W JONES	HQ	W R WEBBER	NAGW 2016	5752
13	NEW MEX ST U-LAS CR	W V JONES	HQ	W R WEBBER	NAGW 3022	5754
13	UNIV NEW MEX	D K RUSSELL	HQ	D WOLFE	NGT 00-070-329	5806
13	CITY COL OF NEW YORK	N P BARNES	LARC	R R ALFANO	NAG 1-1346	5813
13	CITY COL OF NEW YORK	R W VERNON	LERC	J KOPLIK	NAG 3-1167	5814
13	CITY COL OF NEW YORK	F C OWENS	HQ	W J PIERSON	NGT 00-070-098	5818
13	CLARKSON UNIV	F R SZOFRA	MSFC	W R WILCOX	NAG 8-753	5829
13	CLARKSON UNIV	G L MARTIN	HQ	L L REGAL	NAGW 3471	5832
13	COLUMBIA UNIV	L J EARLY	GSFC	R NOVICK	NAG 5-618	5840
13	COLUMBIA UNIV	L J EARLY	GSFC	C MARTIN	NAG 5-642	5841
13	COLUMBIA UNIV	J DABBS	MSFC	C MARTIN	NAG 8-917	5862
13	COLUMBIA UNIV	L KALUZIENSKI	HQ	P KAARET	NAGW 2721	5888
13	COLUMBIA UNIV	D L REASONER	HQ	A BHATTACHARJEE	NAGW 3010	5889
13	COLUMBIA UNIV	E C WHIPPLE	HQ	M E MAUEL	NAGW 3539	5894
13	COLUMBIA UNIV	F C OWENS	HQ	C MARTIN	NGT 00-050-792	5914
13	COLUMBIA UNIV	C HIX	JPL	P KAARET	NGT 00-051-038	5915
13	CORNELL UNIV	P F PENKO	LERC	I D BOYD	NAG 3-1451	5945
13	CORNELL UNIV	L J EARLY	GSFC	P M KINTNER	NAG 5-601	5946
13	CORNELL UNIV	L J EARLY	GSFC	W E SWARTZ	NAG 5-666	5947
13	CORNELL UNIV	L J EARLY	GSFC	P KINTNER	NAG 5-681	5948
13	CORNELL UNIV	L J EARLY	GSFC	P KINTNER	NAG 5-687	5949
13	CORNELL UNIV	L J EARLY	GSFC	P KINTNER	NAG 5-691	5950
13	CORNELL UNIV	L J EARLY	GSFC	P KINTNER	NAG 5-5008	5961
13	CORNELL UNIV	L J EARLY	GSFC	M C KELLEY	NAG 5-5009	5962
13	CORNELL UNIV	M M MELLOTT	HQ	N F OTANI	NAGW 2011	5974
13	CORNELL UNIV	D L REASONER	HQ	C E SEYLER	NAGW 2960	5992
13	CORNELL UNIV	F C OWENS	HQ	P M KINTNER	NGT 00-050-664	6014
13	CORNELL UNIV	F C OWENS	HQ	S W SQUYRES	NGT 00-050-845	6017
13	CORNELL UNIV	J ALEXANDER	HQ	B ISACKS	NGT 00-050-960	6023
13	NEW YORK UNIV	R A WILKINSON	LERC	J K PERCUS	NAG 3-1414	6040
13	POLY INST OF NY	R F BENSON	GSFC	S P KUO	NAG 5-1051	6051
13	RENSSELAER POLY INST	F C OWENS	HQ	L J SCHOWALTER	NGT 00-050-430	6084
13	ROCHESTER INST TECH	G L SCHUSTER	LARC	J R ANDREWS	NAG 1-1147	6099
13	ST U OF NY-ALBANY	T Y MILLER	MSFC	W E GIBSON	NAS 8-39926	6119
13	ST U OF NY-ALBANY	A F HEPP	LERC	A E KOLOYEROS	NCC 3-284	6125

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13	ST U NY-BINGHAMTON	J C HARDIN	LARC	J F GEER	NAG 1-1099	6127
13	ST U OF NY-BUFFALO	S M WANDER	HQ	W GEORGE	NAGW 966	6146
13	ST U NY C-BUFFALO	F C OWENS	HQ	D J MOOK	NGT 00-070-142	6193
13	SYRACUSE UNIV	L CAROFF	HQ	G VIDALI	NAGW 2932	6205
13	UNIV ROCHESTER	J D BOHLIN	HQ	J H THOMAS	NAGW 2123	6212
13	UNIV ROCHESTER	F C OWENS	HQ	H M VANHORN	NGT 00-050-609	6219
13	UNIV ROCHESTER	H ASHKENAS	JPL	D M WATSON	NGT 00-050-888	6221
13	DUKE UNIV	S H CASTLES	GSFC	H MEYER	NAG 5-379	6230
13	DUKE UNIV	E E MONTGOMERY	MSFC	J M MADEY	NAG 8-982	6232
13	NC ST U.-RALEIGH	F C JONES	GSFC	D C ELLISON	NAG 5-1042	6291
13	NC ST U.-RALEIGH	T J BIRMINGHAM	GSFC	D C ELLISON	NAG 5-2254	6294
13	NC ST U.-RALEIGH	W V JONES	HQ	D C ELLISON	NAGW 2001	6299
13	NC ST U.-RALEIGH	F MONTEGANI	LERC	G LUCOUSKY	NGT 00-070-236	6329
13	BALDWIN-WALLACE COL	R W VERNON	LERC	D G PROCTOR	NCC 3-157	6361
13	BALDWIN-WALLACE COL	J M FLOWERS	LERC	D G PROCTOR	NCC 3-315	6364
13	CASE WESTERN RES U	D C FERGUSON	LERC	I GREBER	NAG 3-795	6368
13	CASE WESTERN RES U	P R ARON	LERC	D E FARRELL	NAG 3-814	6369
13	CASE WESTERN RES U	A CHAIT	LERC	P L TAYLOR	NAG 3-1201	6383
13	CASE WESTERN RES U	I L KRAINSKY	LERC	B SEGALL	NAG 3-1525	6399
13	CASE WESTERN RES U	B BANKS	LERC	B SEGEL	NAS 3-26054	6406
13	CASE WESTERN RES U	E HAUGLAND	LERC	B SEGALL	NCC 3-25	6409
13	CASE WESTERN RES U	I WEINBERG	LERC	R W HOFFMAN	NCC 3-118	6419
13	CASE WESTERN RES U	D C FERGUSON	LERC	T G ECK	NCC 3-141	6425
13	CASE WESTERN RES U	I L KRAINSKY	LERC	M TABIB-AZAR	NCC 3-217	6433
13	CASE WESTERN RES U	I L KRAINSKY	LERC	W L GORDON	NCC 3-258	6441
13	CASE WESTERN RES U	F MONTEGANI	LERC	K D SINGER	NGT 00-050-947	6464
13	CASE WESTERN RES U	E PRIOR	LARC	T G ECK	NGT 00-070-237	6471
13	CLEVELAND ST U	S K RUTLEDGE	LERC	P D HAMBOURGER	NAG 3-1531	6493
13	CLEVELAND ST U	B N ROSENTHAL	LERC	S N TEWARI	NCC 3-191	6512
13	CLEVELAND ST U	R C ANDERSON	LERC	J A LOCK	NCC 3-204	6514
13	C-WOOSTER	R A WILKINSON	LERC	D T JACOBS	NAG 3-1354	6533
13	C-WOOSTER	R A WILKINSON	LERC	D T JACOBS	NAG 3-1404	6534
13	JOHN CARROLL UNIV	G ADAMOVSKY	LERC	E J CAROME	NAG 3-984	6543
13	KENT ST U	S G BAILEY	LERC	C V ABURTO	NAG 3-946	6544
13	KENT ST U	P R ARON	LERC	D L JOHNSON	NAG 3-1030	6545
13	KENT ST U	J LARIMER	ARC	J KELLY	NCC 2-803	6546
13	KENT ST U	R F LEONARD	LERC	D L JOHNSON	NCC 3-222	6548
13	OHIO ST U	M A MANTENIEKS	LERC	T M YORK	NAG 3-843	6564
13	OHIO ST U	M P WERNET	LERC	M SAMIMY	NAG 3-1502	6585
13	OHIO ST U	M J KURYLO	HQ	F C DE LUCIA	NAGW 2639	6604
13	UNIV AKRON	G D ROBERTS	LERC	E D VON MEERWALL	NCC 3-164	6679
13	UNIV CINCINNATI	G BEHEIM	LERC	J T BOYD	NAG 3-852	6696
13	WITTENBERG UNIV	G E SCHWARZE	LERC	A J FRASCA	NAG 3-793	6781
13	UNIV OREGON-EUGENE	M C LEE	HQ	R J DONNELLY	NAGW 3354	6864
13	CARNEGIE-MELLON UNIV	M M WEISLOGEL	LERC	S GAROFF	NCC 3-262	6887
13	PA ST U.-UNIV. PARK	G MCANINCH	LARC	A D PIERCE	NAG 1-947	6935
13	PA ST U.-UNIV. PARK	L J EARLY	GSFC	C L CROSKEY	NAG 5-683	6981
13	PA ST U.-UNIV. PARK	L J EARLY	GSFC	J D RUSSELL	NAG 5-5015	7004
13	PA ST U.-UNIV. PARK	D HOLLAND	HQ	D BURROWS	NGT 00-051-125	7079
13	UNIV PITTSBURGH	J A POWELL	LERC	W J CHOYKE	NAG 3-603	7102
13	UNIV PITTSBURGH	L J EARLY	GSFC	E C ZIPF	NAG 5-609	7107
13	UNIV PITTSBURGH	L J EARLY	GSFC	E C ZIPF	NAG 5-661	7108
13	WESTMINSTER COLLEGE	R A WILKINSON	LERC	W L JOHNSON	NCC 3-276	7139
13	BROWN UNIV	M C LEE	HQ	H J MARIS	NAGW 3359	7165
13	BROWN UNIV	W J WAGNER	HQ	P H SCHULTY	NAGW 3431	7168
13	BROWN UNIV	G SOFFEN	GSFC	R H BRANDENBERGER	NGT 00-051-011	7183
13	UNIV RHODE ISLAND	A J ZUCKERWAR	LARC	F W CUOMO	NAG 1-519	7188
13	CLEMSON UNIV-CLEMSON	L J EARLY	GSFC	M F LARSEN	NAG 5-632	7219
13	CLEMSON UNIV-CLEMSON	L J EARLY	GSFC	L M DUNCAN	NAG 5-667	7220
13	CLEMSON UNIV-CLEMSON	L J EARLY	GSFC	M F LARSON	NAG 5-5002	7223

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13	CLEMSON UNIV-CLEMSON	L J EARLY	GSFC	M F LARSON	NAG 6-102	7224
13	CLEMSON UNIV-CLEMSON	W J WAGNER	HQ	M D LEISING	NAGW 2757	7228
13	CLEMSON UNIV-CLEMSON	J F STONE	MSFC	L M DUNCAN	NAS 8-37851	7234
13	FSK UNIV	S R BULLOCK	LERC	W E COLLINS	NAG 3-1430	7271
13	FSK UNIV	J L RANDALL	MSFC	E SILBERMAN	NAG 8-25	7272
13	FSK UNIV	G H FICHTL	MSFC	E SILBERMAN	NAG 8-158	7273
13	FSK UNIV	G H FICHTL	MSFC	E SILBERMAN	NAG 8-202	7274
13	FSK UNIV	S E MASSENBERG	HQ	E SILBERMAN	NAGW 2925	7276
13	UNIV TENN-KNOXVILLE	G SOFFEN	GSFC	W E BLASS	NGT 00-050-969	7326
13	VANDERBILT UNIV	M VLASSE	MSFC	H HOFMEISTER	NAG 8-832	7341
13	VANDERBILT UNIV	B M CARPENTER	HQ	T G WANG	NAGW 2473	7348
13	VANDERBILT UNIV	B M CARPENTER	HQ	R N GRUGEL	NAGW 2844	7349
13	PRAIRIE VIEW A&M U	J P THORNBORROW	JSC	R D BOYD	NAG 9-310	7389
13	PRAIRIE VIEW A&M U	J P THORNBORROW	JSC	R D BOYD	NAG 9-631	7394
13	RICE UNIV	M H ACUNA	GSFC	P A CLOUTIER	NAG 5-1195	7401
13	RICE UNIV	T J BIRMINGHAM	GSFC	T W HILL	NAG 5-1489	7403
13	RICE UNIV	M L GOLDSTEIN	GSFC	P H REIFF	NAG 5-2215	7408
13	RICE UNIV	M M MELLOTT	HQ	P H REIFF	NAGW 1655	7420
13	RICE UNIV	M M MELLOTT	HQ	G H VOIGT	NAGW 2117	7421
13	RICE UNIV	E C WHIPPLE	HQ	R A WOLF	NAGW 2683	7423
13	RICE UNIV	E C WHIPPLE	HQ	G H VOIGT	NAGW 2824	7424
13	RICE UNIV	E C WHIPPLE	HQ	R A WOLF	NAGW 2826	7425
13	RICE UNIV	B M CARPENTER	HQ	R H HAUGE	NAGW 2845	7426
13	RICE UNIV	G SOFFEN	GSFC	E P LIANG	NGT 00-050-924	7444
13	RICE UNIV	G SOFFEN	GSFC	G H VOIGT	NGT 00-051-019	7445
13	RICE UNIV	D HOLLAND	HQ	R C HAYMES	NGT 00-051-079	7447
13	TEXAS A&M UNIV	K MILLER	JSC	F B BEST	NAG 9-493	7503
13	TEXAS A&M UNIV	F C OWENS	HQ	J POSTON	NGT 00-050-380	7540
13	TEXAS TECH UNIV	F C OWENS	HQ	L L HATFIELD	NGT 00-050-635	7583
13	UNIV HOUSTON	L J EARLY	GSFC	E A BERING	NAG 5-688	7586
13	UNIV HOUSTON	G D ARNDT	JSC	R WEINSTEIN	NAG 9-417	7592
13	UNIV HOUSTON	G D ARNDT	JSC	R WEINSTEIN	NAG 9-592	7609
13	UNIV HOUSTON	D K RUSSELL	HQ	T GOLDING	NGT 00-070-250	7633
13	UNIV NORTH TEXAS	J J SINGH	LARC	J M PEREZ	NAG 1-1468	7677
13	U TX-AUSTIN	S M WANDER	HQ	D S DOLLING	NAGW 964	7735
13	U TX-AUSTIN	M M MELLOTT	HQ	W HORTON	NAGW 2590	7751
13	U TX-AUSTIN	R E MURPHY	HQ	C K SHUM	NAGW 2941	7756
13	U TX-AUSTIN	F C OWENS	HQ	J C WHEELER	NGT 00-050-853	7791
13	U TX-AUSTIN	B CARPENTER	HQ	H L SWINNEY	NGT 00-051-151	7797
13	U TX-DALLAS	M M MELLOTT	HQ	W J HEIKKILA	NAGW 957	7813
13	U TX-DALLAS	M M MELLOTT	HQ	R R HODGES	NAGW 2432	7816
13	U TX-DALLAS	M M MELLOTT	HQ	M R HAIRSTON	NAGW 3466	7821
13	BRIGHAM YOUNG UNIV	W WAGNER	HQ	J W MOODY	NAGW 2612	7857
13	UNIV UTAH	W V JONES	HQ	M H SALAMON	NAGW 1999	7874
13	UTAH ST U	L J EARLY	GSFC	K D BAKER	NAG 5-603	7881
13	UTAH ST U	L J EARLY	GSFC	W J RAITT	NAG 5-658	7882
13	UTAH ST U	L J EARLY	GSFC	B G FEJER	NAG 5-672	7883
13	UTAH ST U	L J EARLY	GSFC	J C ULWICK	NAG 5-686	7884
13	UTAH ST U	T J BIRMINGHAM	GSFC	R W SCHUNK	NAG 5-1484	7885
13	UTAH ST U	W V JONES	HQ	D D LIND	NAGW 2066	7890
13	UTAH ST U	M M MELLOTT	HQ	B G FEJER	NAGW 2103	7891
13	UTAH ST U	D L REASONER	HQ	C SWENSON	NAGW 2852	7892
13	UTAH ST U	E C WHIPPLE	HQ	H G DEMARS	NAGW 3567	7895
13	UTAH ST U	W M KNOTT	KSC	F B SALISBURY	NAG10-73	7897
13	MIDDLEBURY COLLEGE	F SIX	MSFC	W TIMOSZYK	NAG 8-238	7907
13	MIDDLEBURY COLLEGE	J D BOHLIN	HQ	R WOLFSON	NAGW 2141	7908
13	CHRISTOPHER NWPORT C	P BROCKMAN	LARC	A M BUONCRISTIANI	NAG 1-796	7913
13	CHRISTOPHER NWPORT C	J L SHINN	LARC	C K CHANG	NAG 1-1286	7916
13	CHRISTOPHER NWPORT C	J L SHINN	LARC	C K CHANG	NCC 1-178	7920
13	C-WILLIAM AND MARY	P H JOHNSTON	LARC	B T SMITH	NAG 1-1063	7928

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13	C-WILLIAM AND MARY	M A SMITH	LARC	D C BENNER	NCC 1-80	7934
13	GEORGE MASON UNIV	W J WAGNER	HQ	B J GELDZAHLE	NAGW 2758	7959
13	GEORGE MASON UNIV	J P NORRIS	GSFC	M KAFATOS	NCC 5-52	7961
13	HAMPTON UNIV	M D WILLIAMS	LARC	D D VENABLE	NAG 1-970	7968
13	HAMPTON UNIV	E J CONWAY	LARC	D D VENABLE	NAG 1-1091	7969
13	HAMPTON UNIV	J J SINGH	LARC	K S HAN	NAG 1-1168	7971
13	HAMPTON UNIV	S E MASSENBERG	HQ	D D VENABLE	NAGW 2929	7977
13	NORFOLK ST U	J H LEE	LARC	G E MILLER	NAG 1-1513	7986
13	OLD DOMINION UNIV	G C GREENE	LARC	O A KANDIL	NAG 1-994	8001
13	OLD DOMINION UNIV	S H CHOI	LARC	J H HEINBOCKEL	NAG 1-1424	8015
13	OLD DOMINION UNIV	G C GREENE	LARC	R L ASH	NAG 1-1437	8018
13	OLD DOMINION UNIV	R A KIMBLE	GSFC	J BECHER	NAG 5-1527	8024
13	OLD DOMINION UNIV	L W TOWNSEND	LARC	G S KHADELWAL	NCC 1-42	8029
13	OLD DOMINION UNIV	E J PRIOR	LARC	G S KHADELWAL	NGT 00-051-104	8045
13	OLD DOMINION UNIV	F C OWENS	HQ	W L HARRIES	NGT 00-070-232	8051
13	OLD DOMINION UNIV	E J PRIOR	LARC	W L HARNES	NGT 00-070-263	8052
13	UNIV VIRGINIA	M M MELLOTT	HQ	R E JOHNSON	NAGW 2046	8106
13	UNIV VIRGINIA	M BICAY	HQ	A W LICHTENBERGER	NAGW 2377	8112
13	UNIV VIRGINIA	F C OWENS	HQ	J J DORING	NGT 00-050-568	8126
13	UNIV VIRGINIA	F C OWENS	HQ	J J DORNING	NGT 00-050-821	8137
13	UNIV VIRGINIA	G LESANE	HQ	J J DORNING	NGT 00-051-063	8146
13	VIRGINIA ST U	J W WILSON	LARC	C E STRONACH	NAG 1-1527	8269
13	UNIV WASHINGTON	L J EARLY	GSFC	R H HOLZWORTH	NAG 5-604	8290
13	UNIV WASHINGTON	H C NEEDLEMAN	GSFC	R H HOLZWORTH	NAG 5-668	8291
13	UNIV WASHINGTON	L J EARLY	GSFC	G K PARKS	NAG 5-677	8292
13	UNIV WASHINGTON	H C NEEDLEMAN	GSFC	R H HOLZWORTH	NAG 5-685	8293
13	UNIV WASHINGTON	L J EARLY	GSFC	R H HOLZWORTH	NAG 5-5011	8310
13	UNIV WASHINGTON	G ASRAR	HQ	L TSANG	NAGW 1702	8332
13	UNIV WASHINGTON	M M MELLOTT	HQ	G K PARKS	NAGW 2009	8335
13	UNIV WASHINGTON	W V JONES	HQ	R J WILKES	NAGW 2156	8337
13	UNIV WASHINGTON	W WAGNER	HQ	R M WINGLEE	NAGW 2819	8353
13	UNIV WASHINGTON	W V JONES	HQ	R J WILKES	NAGW 3026	8356
13	UNIV WASHINGTON	W V JONES	HQ	R WILKES	NAGW 3528	8366
13	UNIV WASHINGTON	E C WHIPPLE	HQ	G K PARKS	NAGW 3650	8370
13	UNIV WASHINGTON	J J O'BRIEN	GSFC	G K PARKS	NAS 5-26850	8377
13	UNIV WASHINGTON	K ISTICH	GSFC	G K PARKS	NAS 5-30613	8378
13	UNIV WASHINGTON	F C OWENS	HQ	P V HOBBS	NGT 00-050-443	8409
13	UNIV WASHINGTON	F C OWENS	HQ	J LORD	NGT 00-050-700	8415
13	UNIV WASHINGTON	F C OWENS	HQ	G K PARKS	NGT 00-050-788	8418
13	UNIV WASHINGTON	D HOLLAND	HQ	R M WINGLEE	NGT 00-051-155	8425
13	WASHINGTON ST U	W KNOTT	KSC	B W POOVAIAH	NAG10-61	8438
13	UNIV WISC-LA CROSSE	F A CUCINOTTA	LARC	J W NORBURY	NAG 1-1457	8487
13	UNIV WISC-MADISON	J A SALZMAN	LERC	S KOU	NAG 3-1393	8502
13	UNIV WISC-MADISON	R KELLEY	GSFC	D MCCAMMON	NAG 5-594	8507
13	UNIV WISC-MADISON	L J EARLY	GSFC	K H NORDSIECK	NAG 5-647	8508
13	UNIV WISC-MADISON	L J EARLY	GSFC	R J REYNOLDS	NAG 5-674	8509
13	UNIV WISC-MADISON	L J EARLY	GSFC	D MCCAMMON	NAG 5-679	8510
13	UNIV WISC-MADISON	D MCKAY	JSC	G L KULCINSKI	NAG 9-568	8547
13	UNIV WISC-MADISON	B M CARPENTER	HQ	R F COOPER	NAGW 2835	8570
13	UNIV WISC-MADISON	B M CARPENTER	HQ	J H PEREPEZKO	NAGW 2841	8571
13	UNIV WISC-MADISON	F C OWENS	HQ	B D SAVAGE	NGT 00-050-426	8610
13	UNIV WISC-MILWAUKEE	T K GLASGOW	LERC	M LEVY	NAG 3-1274	8618
13	UNIV WYOMING	M J KAVAYA	MSFC	R INGUVA	NAG 8-249	8632
13	U PUERTO RICO-MAYAGZ	R A KESKI-KUHA	GSFC	F E FERNANDEZ	NAG 5-2188	8648
13	U PUERTO RICO-MAYAGZ	D K RUSSELL	HQ	A LEYDERMAN	NGT 00-070-322	8663
19	ALA A&M UNIV	G H FICHTL	MSFC	C W LOWE	NAG 8-236	1014
19	AUBURN UNIV	C CRANNELL	GSFC	L GREENE	NAS 5-30759	1037
19	UNIV ALA-BIRMINGHAM	H C BRINTON	HQ	D C AGRESTI	NAGW 3081	1072
19	UNIV ALA-BIRMINGHAM	F R SZOFRA	MSFC	R N ANDREWS	NAS 8-38672	1074
19	UNIV ALA-BIRMINGHAM	L C YATES	MSFC	J B ANDREWS	NAS 8-39717	1075

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19	UNIV ALA-BIRMINGHAM	B J HERREN	MSFC	L J DELUCAS	NAS 8-39762	1076
19	UNIV ALA-HUNTSVILLE	A L FRIPP	LARC	A NADARAJAH	NAG 1-1534	1086
19	UNIV ALA-HUNTSVILLE	J A SALZMAN	LERC	J I ALEXANDER	NAG 3-1384	1088
19	UNIV ALA-HUNTSVILLE	F R SZOFRAN	MSFC	F E ROSENBERGER	NAG 8-842	1112
19	UNIV ALA-HUNTSVILLE	M L PUSEY	MSFC	F ROSENBERGER	NAG 8-931	1119
19	UNIV ALA-HUNTSVILLE	L B JETER	MSFC	F ROSENBERGER	NAS 8-39716	1157
19	UNIV ALA-HUNTSVILLE	F SIX	MSFC	W P SCHONBERG	NGT 00-070-253	1176
19	UNIV ALA-UNIV	I C YATES	MSFC	D M STEFANESCU	NAS 8-39715	1196
19	UNIV SOUTH ALA	F SIX	MSFC	R E SPALL	NAG 8-278	1201
19	UNIV ALASKA-FAIRBNKS	D K HALL	GSFC	C S BENSON	NAG 5-887	1205
19	UNIV ALASKA-FAIRBNKS	G D BULLOCK	GSFC	D WEIMER	NAG 5-2249	1212
19	UNIV ALASKA-FAIRBNKS	L J EARLY	GSFC	E M WESCOTT	NAG 6-1	1216
19	UNIV ALASKA-FAIRBNKS	R J GUNDERMAN	LERC	C E MAYER	NAS 3-26401	1238
19	ARIZONA ST U	J A NUTH	HQ	S WYCOFF	NAGW 2241	1289
19	ARIZONA ST U	J A NUTH	HQ	J W LARIMER	NAGW 2273	1290
19	ARIZONA ST U	J A NUTH	HQ	J R HOLLOWAY	NAGW 2274	1291
19	ARIZONA ST U	J A NUTH	HQ	R L HERVIG	NAGW 2276	1292
19	ARIZONA ST U	W L QUAIDE	HQ	C SANDERS	NAGW 2343	1294
19	ARIZONA ST U	J A NUTH	HQ	I M ZIURYS	NAGW 3065	1300
19	NORTHERN ARIZONA U	J A NUTH	HQ	C S SHOEMAKER	NAGW 2303	1321
19	UNIV OF ARIZONA	L E LASHER	ARC	D M HUNTEN	NAG 2-143	1327
19	UNIV OF ARIZONA	S S WEGENER	ARC	J A REAGAN	NAG 2-620	1331
19	UNIV OF ARIZONA	J A SALZMAN	LERC	C F CHEN	NAG 3-1386	1341
19	UNIV OF ARIZONA	R S SNYDER	MSFC	J C BAYGENTS	NAG 8-909	1378
19	UNIV OF ARIZONA	I D BROWNE	JSC	J GANGULY	NAG 9-460	1386
19	UNIV OF ARIZONA	F VILAS	JSC	L A LEBOSKY	NAG 9-494	1387
19	UNIV OF ARIZONA	W L QUAIDE	HQ	D E SHEMANSKY	NAGW 1182	1404
19	UNIV OF ARIZONA	M M MELLOTT	HQ	L L HOOD	NAGW 1658	1413
19	UNIV OF ARIZONA	J K ALEXANDER	HQ	B R SANDEL	NAGW 1676	1414
19	UNIV OF ARIZONA	W L QUAIDE	HQ	H P LARSON	NAGW 2206	1430
19	UNIV OF ARIZONA	J A NUTH	HQ	C Y FAN	NAGW 2249	1433
19	UNIV OF ARIZONA	J A NUTH	HQ	J I LUNINE	NAGW 2250	1434
19	UNIV OF ARIZONA	J A NUTH	HQ	D R HUFFMAN	NAGW 2253	1435
19	UNIV OF ARIZONA	J A NUTH	HQ	D MCCARTHY	NAGW 2254	1436
19	UNIV OF ARIZONA	J A NUTH	HQ	J H BLACK	NAGW 2255	1437
19	UNIV OF ARIZONA	J A NUTH	HQ	E LEVY	NAGW 2291	1438
19	UNIV OF ARIZONA	J A NUTH	HQ	L L HOOD	NAGW 2315	1440
19	UNIV OF ARIZONA	J A NUTH	HQ	R S MCMILLAN	NAGW 2321	1441
19	UNIV OF ARIZONA	W L QUAIDE	HQ	C C PORCO	NAGW 2342	1442
19	UNIV OF ARIZONA	W L QUAIDE	HQ	E H LEVY	NAGW 2358	1444
19	UNIV OF ARIZONA	W L QUAIDE	HQ	R V YELLE	NAGW 2360	1446
19	UNIV OF ARIZONA	W L QUAIDE	HQ	U FINK	NAGW 2406	1447
19	UNIV OF ARIZONA	W L QUAIDE	HQ	B R SANDELL	NAGW 2441	1449
19	UNIV OF ARIZONA	W L QUAIDE	HQ	R V YELLE	NAGW 2537	1453
19	UNIV OF ARIZONA	W L QUAIDE	HQ	R G STROM	NAGW 2877	1466
19	UNIV OF ARIZONA	J A NUTH III	HQ	M J DRAKE	NAGW 2884	1469
19	UNIV OF ARIZONA	H C BRINTON	HQ	W V BOYNTON	NAGW 3076	1471
19	UNIV OF ARIZONA	H C BRINTON	HQ	J LEWIS	NAGW 3400	1482
19	UNIV OF ARIZONA	J A NUTH	HQ	W BENZ	NAGW 3406	1483
19	UNIV OF ARIZONA	J T BERGSTRAHL	HQ	R V YELLE	NAGW 3631	1495
19	UNIV OF ARIZONA	H C BRINTON	HQ	W V BOYNTON	NAGW 3717	1500
19	UNIV OF ARIZONA	F C OWENS	HQ	H J MELOSH	NGT 00-050-477	1530
19	UNIV OF ARIZONA	F C OWENS	HQ	J I LUNINE	NGT 00-050-479	1531
19	UNIV OF ARIZONA	F C OWENS	HQ	P N SLATER	NGT 00-050-794	1543
19	ARKANSAS ST U	F SIX	MSFC	B BENNETT	NAG 8-277	1559
19	UNIV ARK-LITTLE ROCK	F SIX	MSFC	T VISWANATHAN	NAG 8-276	1565
19	CALIF INST OF TECH	I D BROWNE	JSC	E STOLPER	NAG 9-105	1609
19	CALIF INST OF TECH	G LEVY	HQ	E S PHINNEY	NAGW 2142	1629
19	CALIF INST OF TECH	J A NUTH	HQ	T A TOMBRELLO	NAGW 2279	1633
19	CALIF INST OF TECH	J A NUTH	HQ	G A BLAKE	NAGW 2297	1634

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19	CALIF INST OF TECH	J A NUTH	HQ	E STOLPER	NAGW 2320	1635
19	CALIF INST OF TECH	W L QUAIDE	HQ	Y L YUNG	NAGW 2362	1637
19	CALIF INST OF TECH	W L QUAIDE	HQ	A P INGERSOLL	NAGW 2363	1638
19	CALIF INST OF TECH	W L QUAIDE	HQ	D O MUHLEMAN	NAGW 2396	1641
19	CALIF INST OF TECH	W QUAIDE	HQ	E C STONE	NAGW 2402	1642
19	CALIF INST OF TECH	W L QUAIDE	HQ	T J AHRENS	NAGW 2439	1643
19	CALIF INST OF TECH	W QUAIDE	HQ	B MURRAY	NAGW 2491	1644
19	CALIF INST OF TECH	W L QUAIDE	HQ	D J STEVENSON	NAGW 2496	1645
19	CALIF INST OF TECH	W QUAIDE	HQ	D O MUHLEMAN	NAGW 2576	1646
19	CALIF INST OF TECH	J A NUTH	HQ	G J WASSERBURG	NAGW 3040	1656
19	CALIF INST OF TECH	J A NUTH	HQ	A I SARGENT	NAGW 3172	1658
19	CALIF INST OF TECH	J A NUTH	HQ	S R KULKARNI	NAGW 3207	1659
19	CALIF INST OF TECH	F C OWENS	HQ	Y L YUNG	NGT 00-050-726	1686
19	CAL ST U-FULLERTON	J A NUTH	HQ	D S WOLLUM	NAGW 2515	1739
19	SAN JOSE ST U	J I TROMBKA	GSFC	P A ENGLERT	NAG 5-1273	1801
19	SAN JOSE ST U	R E YOUNG	ARC	B RAGENT	NCC 2-466	1836
19	SAN JOSE ST U	J W DYER	ARC	L COLIN	NCC 2-527	1838
19	STANFORD UNIV	R L THOMPSON	LERC	G M HOMSY	NAG 3-1475	1881
19	STANFORD UNIV	G D BULLOCK	GSFC	R A HELLIWELL	NAG 5-476	1882
19	STANFORD UNIV	G D BULLOCK	GSFC	U S INAN	NAG 5-1549	1885
19	STANFORD UNIV	M PUSEY	MSFC	R S FEIGELSON	NAG 8-774	1889
19	STANFORD UNIV	B L GILES	MSFC	D L CARPENTER	NAG 8-784	1890
19	STANFORD UNIV	I D BROWNE	JSC	R N ZARE	NAG 9-458	1892
19	STANFORD UNIV	W L QUAIDE	HQ	L TYLER	NAGW 2437	1908
19	STANFORD UNIV	W L QUAIDE	HQ	V R ESHLEMAN	NAGW 2442	1909
19	STANFORD UNIV	W L QUAIDE	HQ	U S INAN	NAGW 2894	1914
19	STANFORD UNIV	H C BRINTON	HQ	G L TYLER	NAGW 3375	1918
19	UNIV CALIF-BERKELEY	G D BULLOCK	GSFC	J CHAKRABARTI	NAG 5-1507	2065
19	UNIV CALIF-BERKELEY	G D BULLOCK	GSFC	C A CATTELL	NAG 5-1523	2066
19	UNIV CALIF-BERKELEY	L J EARLY	GSFC	C W CARLSON	NAG 6-10	2091
19	UNIV CALIF-BERKELEY	J A NUTH	HQ	S W STAHLER	NAGW 3107	2134
19	UNIV CALIF-BERKELEY	J A NUTH III	HQ	F H SHU	NAGW 3595	2143
19	UNIV CALIF-IRVINE	J A NUTH	HQ	S P RUDEN	NAGW 2260	2296
19	UNIV CALIF-IRVINE	L E MAULDRIN	LARC	R CICERONE	NAS 1-19155	2306
19	UNIV CAL-LOS ANGELES	G D BULLOCK	GSFC	J E MAGGS	NAG 5-488	2339
19	UNIV CAL-LOS ANGELES	R O WALES	GSFC	C T RUSSELL	NAG 5-1067	2345
19	UNIV CAL-LOS ANGELES	G D BULLOCK	GSFC	M G KIVELSON	NAG 5-1529	2354
19	UNIV CAL-LOS ANGELES	G D BULLOCK	GSFC	R J WALKER	NAG 5-1530	2355
19	UNIV CAL-LOS ANGELES	G BULLOCK	GSFC	C RUSSELL	NAG 5-1967	2359
19	UNIV CAL-LOS ANGELES	I D BROWNE	JSC	P H WARREN	NAG 9-87	2367
19	UNIV CAL-LOS ANGELES	J A NUTH	HQ	J T WASSON	NAGW 2243	2391
19	UNIV CAL-LOS ANGELES	J A NUTH	HQ	W M KAULA	NAGW 2269	2392
19	UNIV CAL-LOS ANGELES	J A NUTH	HQ	B M ZUCKERMAN	NAGW 2270	2393
19	UNIV CAL-LOS ANGELES	W QUAIDE	HQ	P M DAVIS	NAGW 2384	2396
19	UNIV CAL-LOS ANGELES	W L QUAIDE	HQ	D D BARBOSA	NAGW 2397	2397
19	UNIV CAL-LOS ANGELES	W L QUAIDE	HQ	G L SISCOE	NAGW 2409	2398
19	UNIV CAL-LOS ANGELES	W L QUAIDE	HQ	C T RUSSELL	NAGW 2573	2400
19	UNIV CAL-LOS ANGELES	W L QUAIDE	HQ	J LUHMANN	NAGW 2575	2401
19	UNIV CAL-LOS ANGELES	W L QUAIDE	HQ	C T RUSSELL	NAGW 2886	2407
19	UNIV CAL-LOS ANGELES	J A NUTH	HQ	J F KERRIDGE	NAGW 3064	2410
19	UNIV CAL-LOS ANGELES	J A NUTH	HQ	NEWMAN	NAGW 3132	2414
19	UNIV CAL-LOS ANGELES	H C BRINTON	HQ	P M DAVIS	NAGW 3468	2420
19	UNIV CAL-LOS ANGELES	H C BRINTON	HQ	R THORNE	NAGW 3590	2428
19	UNIV CAL-SAN DIEGO	L E LASHER	ARC	W FILLIUS	NAG 2-153	2477
19	UNIV CAL-SAN DIEGO	I D BROWNE	JSC	K MARTI	NAG 9-41	2514
19	UNIV CAL-SAN DIEGO	J A NUTH	HQ	M H THIEMENS	NAGW 2251	2537
19	UNIV CAL-SAN DIEGO	J A NUTH	HQ	A MENDIS	NAGW 2252	2538
19	UNIV CAL-SAN DIEGO	W L QUAIDE	HQ	J R ARNOLD	NAGW 2577	2540
19	UNIV CAL-SAN DIEGO	J A NUTH	HQ	B JONES	NAGW 3127	2557
19	U CAL-SANTA BARBARA	G I JOHNSTON	HQ	L A COLDREN	NAGW 2027	2630

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19	U CAL-SANTA BARBARA	J A NUTH	HQ	LANGER	NAGW 2837	2638
19	U CAL-SANTA BARBARA	F C OWENS	HQ	J DOZIER	NGT 00-050-461	2661
19	U CAL-SANTA CRUZ	J A NUTH	HQ	P H BODENHEIMER	NAGW 3408	2679
19	U CAL-SANTA CRUZ	J A NUTH III	HQ	D LIN	NAGW 3599	2680
19	UNIV SAN FRANCISCO	T A PARNELL	MSFC	E V BENTON	NAG 8-789	2702
19	UNIV SOUTHERN CALIF	S M WANDER	HQ	R E KAPLAN	NAGW 1061	2715
19	UNIV SOUTHERN CALIF	W L QUAIDE	HQ	D L JUDGE	NAGW 2354	2718
19	UNIV SOUTHERN CALIF	H C BRINTON	HQ	D E SHEMANSKY	NAGW 3002	2725
19	UNIV COL-BOULDER	M E HILL	LERC	J N KOSTER	NAG 3-1094	2815
19	UNIV COL-BOULDER	J A SALZMAN	LERC	R L SANI	NAG 3-1410	2821
19	UNIV COL-BOULDER	G D BULLOCK	GSFC	T N WOODS	NAG 5-1505	2842
19	UNIV COL-BOULDER	G D BULLOCK	GSFC	T W SPEISER	NAG 5-1506	2843
19	UNIV COL-BOULDER	G D BULLOCK	GSFC	D W RUSCH	NAG 5-1525	2844
19	UNIV COL-BOULDER	M BALTUCK	HQ	J WAHR	NAGW 1942	2918
19	UNIV COL-BOULDER	M BALTUCK	HQ	G ROSBOROUGH	NAGW 1944	2919
19	UNIV COL-BOULDER	J A NUTH	HQ	G R STEWART	NAGW 2248	2927
19	UNIV COL-BOULDER	W L QUAIDE	HQ	J E COLWELL	NAGW 2404	2932
19	UNIV COL-BOULDER	W L QUAIDE	HQ	S A STERN	NAGW 2435	2933
19	UNIV COL-BOULDER	W L QUAIDE	HQ	W R PRYOR	NAGW 2488	2936
19	UNIV COL-BOULDER	W L QUAIDE	HQ	B JAKOSKY	NAGW 2879	2951
19	UNIV COL-BOULDER	J T BERGSTRAHL	HQ	M HORANYI	NAGW 3271	2972
19	UNIV COL-BOULDER	H C BRINTON	HQ	W A MCCLINTOCK	NAGW 3370	2975
19	UNIV COL-BOULDER	M C BRINTON	HQ	D H GRINSPOON	NAGW 3584	2981
19	UNIV COL-BOULDER	J A NUTH III	HQ	T P SNOW	NAGW 3600	2983
19	UNIV COL-BOULDER	F C OWNES	HQ	A F GOETZ	NGT 00-050-728	3041
19	UNIV COL-BOULDER	L J EARLY	GSFC	C A BARTH	NSG-5103	3071
19	WESLEYAN UNIV	J A NUTH	HQ	W HERBST	NAGW 3632	3111
19	YALE UNIV	C A STEARNS	LARC	D ROSNER	NAG 3-884	3113
19	GEORGE WASHINGTON U	J B STEPHENS	MSFC	J M LOGSDON	NAG 8-788	3180
19	GEORGE WASHINGTON U	G ASRAR	HQ	R H LANG	NAGW 2071	3181
19	FLORIDA ATLANTIC U	R J GUNDERMAN	LERC	H F HELMKEN	NAS 3-26956	3278
19	FLORIDA ST U	E SCHWARTZ	HQ	D W STUART	NGT 00-050-437	3329
19	FLORIDA ST U	F C OWENS	HQ	S E NICHOLSON	NGT 00-050-475	3330
19	FLORIDA ST U	F C OWENS	HQ	J J O'BRIEN	NGT 00-050-484	3331
19	UNIV FLORIDA	A L FRIPP	LARC	T J ANDERSON	NAG 1-1474	3373
19	UNIV FLORIDA	J I TROMBKA	GSFC	A C RESTER	NAG 5-1290	3382
19	UNIV FLORIDA	F HORZ	JSC	S F DERMOTT	NAG 9-440	3388
19	UNIV FLORIDA	W L QUAIDE	HQ	T D CARR	NAGW 2410	3391
19	UNIV SOUTH FLORIDA	G J GUNDERMAN	LERC	R E HENNING	NAS 3-26412	3460
19	CLARK ATLANTA UNIV	S STECURA	LERC	T MENSAH	NAG 3-1394	3471
19	GEORGIA INST OF TECH	J A NUTH	HQ	J W BELETIC	NAGW 3181	3526
19	UNIV HAWAII-MANOA	D P BLANCHARD	JSC	G J TAYLOR	NAG 9-428	3634
19	UNIV HAWAII-MANOA	I D BROWNE	JSC	K KEIL	NAG 9-454	3635
19	UNIV HAWAII-MANOA	J A NUTH	HQ	A TOKUNAGA	NAGW 2278	3663
19	UNIV HAWAII-MANOA	J A NUTH	HQ	D JEWITT	NAGW 3398	3680
19	UNIV HAWAII-MANOA	F C OWENS	HQ	T B MCCORD	NGT 00-050-510	3704
19	UNIV CHICAGO	G BULLOCK	GSFC	P MEYER	NAG 5-2307	3803
19	UNIV CHICAGO	I D BROWNE	JSC	F J OLSEN	NAG 9-498	3810
19	UNIV CHICAGO	J A NUTH	HQ	I M STEELE	NAGW 2272	3826
19	UNIV CHICAGO	W L QUAIDE	HQ	T ECONOMOU	NAGW 2578	3829
19	UNIV CHICAGO	J A NUTH	HQ	R CLAYTON	NAGW 3069	3834
19	UNIV CHICAGO	J A NUTH	HQ	L GROSSMAN	NAGW 3212	3837
19	UNIV CHICAGO	F C OWENS	HQ	R C SRIVASTAVA	NGT 00-050-449	3852
19	UNIV CHICAGO	J T LYNCH	HQ	S MEYER	NGT 00-051-100	3868
19	UNIV ILLINOIS URBANA	A L FRIPP	LARC	J A DANTZIG	NAG 1-1545	3883
19	UNIV ILLINOIS URBANA	J A NUTH	HQ	L E SNYDER	NAGW 2299	3927
19	INDIANA U-BLOOMINGTN	J A NUTH	HQ	R DURISON	NAGW 3399	3981
19	PURDUE UNIV	I D BROWNE	JSC	M E LIPSCHUTZ	NAG 9-580	4028
19	UNIV NOTRE DAME	J A NUTH	HQ	S C TEGLER	NAGW 3433	4077
19	IOWA ST U	B F SMITH	ARC	J D IVERSON	NAG 2-151	4094

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19	IOWA ST U	S D COBB	MSFC	T A LOGGRASSO	NAG 8-963	4114
19	IOWA ST U	R A SCHMITZ	HQ	T LOGGRASSO	NAGW 2601	4118
19	UNIV IOWA	G D BULLOCK	GSFC	D A GURNETT	NAG 5-310	4143
19	UNIV IOWA	G D BULLOCK	GSFC	L A FRANK	NAG 5-483	4144
19	UNIV IOWA	G BULLOCK	GSFC	L A FRANK	NAG 5-1109	4146
19	UNIV IOWA	G D BULLOCK	GSFC	C HUANG	NAG 5-1543	4150
19	UNIV IOWA	R F BENSON	GSFC	W CALVERT	NAG 5-1926	4151
19	UNIV IOWA	G D BULLOCK	GSFC	J D MENIETTI	NAG 5-2102	4153
19	UNIV IOWA	J A NUTH	HQ	J A GOREE	NAGW 3126	4169
19	UNIV IOWA	H C BRINTON	HQ	J D MENIETTI	NAGW 3143	4170
19	UNIV KANSAS	H C BRINTON	HQ	M SEGAL	NAGW 3420	4213
19	LA ST U-BATON ROUGE	W I SCALLION	LARC	R W COURTER	NAG 1-1359	4258
19	JOHNS HOPKINS UNIV	W P WINFREE	LARC	J W WAGNER	NAG 1-1191	4323
19	JOHNS HOPKINS UNIV	W P WINFREE	LARC	J WAGNER	NAG 1-1524	4325
19	JOHNS HOPKINS UNIV	G D BULLOCK	GSFC	D G MITCHELL	NAG 5-1524	4337
19	JOHNS HOPKINS UNIV	G D BULLOCK	GSFC	R E ERLANDSON	NAG 5-1601	4340
19	JOHNS HOPKINS UNIV	G C CLAYTON	HQ	J H KROLIK	NAGW 2012	4377
19	JOHNS HOPKINS UNIV	J A NUTH	HQ	D A NEUFELD	NAGW 2307	4381
19	JOHNS HOPKINS UNIV	W L QUAIDE	HQ	A F CHENG	NAGW 2373	4382
19	JOHNS HOPKINS UNIV	W L QUAIDE	HQ	B H MAUK	NAGW 2433	4384
19	JOHNS HOPKINS UNIV	W L QUAIDE	HQ	D F STROBEL	NAGW 2443	4385
19	JOHNS HOPKINS UNIV	H C BRINTON	HQ	A F CHENG	NAGW 3387	4408
19	JOHNS HOPKINS UNIV	F WAINSCOTT	GSFC	P D FELDMAN	NAS 5-26848	4413
19	UNIV MD-COLLEGE PARK	G D BULLOCK	GSFC	T EASTMAN	NAG 5-1558	4490
19	UNIV MD-COLLEGE PARK	I D BROWNE	JSC	R J WALKER	NAG 9-548	4526
19	UNIV MD-COLLEGE PARK	J M BOYCE	HQ	M A'HEARN	NAGW 2889	4563
19	UNIV MD-COLLEGE PARK	R E MURPHY	HQ	R DUBAYAH	NAGW 2928	4564
19	UNIV MD-COLLEGE PARK	J A NUTH,III	HQ	L MUNDY	NAGW 3066	4566
19	UNIV MD-COLLEGE PARK	H C BRINTON	HQ	R KHANNA	NAGW 3598	4579
19	UNIV MD-COLLEGE PARK	W R HOEGY	GSFC	S W GREENWOOD	NCC 5-35	4603
19	BOSTON COLLEGE	G D BULLOCK	GSFC	J BASU	NAG 5-1544	4636
19	BOSTON UNIV	W L QUAIDE	HQ	W J HUGHES	NAGW 2890	4659
19	CLARK UNIV	M E HILL	LERC	S P LIN	NAG 3-1402	4669
19	HARVARD UNIV	J A NUTH	HQ	A G CAMERON	NAGW 2277	4705
19	HARVARD UNIV	W L QUAIDE	HQ	J BLOXHAM	NAGW 2494	4706
19	HARVARD UNIV	J A NUTH	HQ	S B JACOBSEN	NAGW 2858	4710
19	HARVARD UNIV	G MADDREA	LARC	S C WOFSY	NAS 1-18946	4718
19	MASS INST OF TECH	D B SNYDER	LERC	D E HASTINGS	NAG 3-695	4780
19	MASS INST OF TECH	M P VOLZ	MSFC	A F WITT	NAG 8-913	4845
19	MASS INST OF TECH	E C ETHRIDGE	MSFC	A F WITT	NAG 8-949	4847
19	MASS INST OF TECH	I D BROWNE	JSC	S A BOWRING	NAG 9-531	4858
19	MASS INST OF TECH	R K CROUCH	HQ	J LAGOWSKI	NAGW 1563	4876
19	MASS INST OF TECH	G LEVY	HQ	S S MEYER	NAGW 1841	4881
19	MASS INST OF TECH	M BALTUCK	HQ	M N TOKSOZ	NAGW 1961	4884
19	MASS INST OF TECH	J A NUTH	HQ	J N HEWITT	NAGW 2310	4894
19	MASS INST OF TECH	W L QUAIDE	HQ	H B HAMMEL	NAGW 2385	4896
19	MASS INST OF TECH	W L QUAIDE	HQ	J W BELCHER	NAGW 2403	4898
19	MASS INST OF TECH	B M CARPENTER	HQ	R A BROWN	NAGW 2674	4901
19	MASS INST OF TECH	W L QUAIDE	HQ	T E DOWLING	NAGW 2891	4906
19	MASS INST OF TECH	C RAY	HQ	A F WITT	NAGW 3462	4918
19	SMITH COLLEGE	J A NUTH,III	HQ	S STAHLER	NAGW 2322	4990
19	UNIV MASS-AMHERST	F C OWENS	HQ	C T SWIFT	NGT 00-050-487	5030
19	WELLESLEY COLLEGE	W L QUAIDE	HQ	P G FRENCH	NAGW 2511	5038
19	WELLESLEY COLLEGE	J T BERGSTRAHL	HQ	G STARK	NAGW 3607	5039
19	MICHIGAN TECH U	H C BRINTON	HQ	A BORYSOW	NAGW 3390	5092
19	U MICHIGAN-ANN ARBOR	A T CHAI	LERC	V S ARPACI	NAG 3-1133	5125
19	U MICHIGAN-ANN ARBOR	G D BULLOCK	GSFC	P B HAYS	NAG 5-465	5133
19	U MICHIGAN-ANN ARBOR	G D BULLOCK	GSFC	A F NAGY	NAG 5-472	5134
19	U MICHIGAN-ANN ARBOR	G D BULLOCK	GSFC	I C MCDADE	NAG 5-1502	5141
19	U MICHIGAN-ANN ARBOR	G D BULLOCK	GSFC	J U KOZYRA	NAG 5-1542	5142



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19	U MICHIGAN-ANN ARBOR	W R HOEGY	GSFC	G R CARIGNAN	NAG 5-1691	5146
19	U MICHIGAN-ANN ARBOR	R E HARTLE	GSFC	T L KILLEEN	NAG 5-2250	5153
19	U MICHIGAN-ANN ARBOR	W L QUAIDE	HQ	L H BRACE	NAGW 2501	5189
19	U MICHIGAN-ANN ARBOR	W L QUAIDE	HQ	S K ATREYA	NAGW 2561	5191
19	U MICHIGAN-ANN ARBOR	H C BRINTON	HQ	M COMBI	NAGW 3417	5194
19	U MICHIGAN-ANN ARBOR	H C BRINTON	HQ	T M DONAHUE	NAGW 3423	5195
19	U MICHIGAN-ANN ARBOR	H C BRINTON	HQ	M COMB	NAGW 3585	5199
19	AUGSBURG COLLEGE	J A SLAVIN	GSFC	M J ENGEBRETSON	NAG 5-1325	5262
19	U MINN-MNPLS-ST PAUL	I O CLARK	LARC	J J DERBY	NAG 1-1268	5269
19	U MINN-MNPLS-ST PAUL	G D BULLOCK	GSFC	L J CAHILL	NAG 5-529	5279
19	U MINN-MNPLS-ST PAUL	I D BROWNE	JSC	R O PEPIN	NAG 9-60	5287
19	U MINN-MNPLS-ST PAUL	W L QUAIDE	HQ	K MAUERSBERGER	NAGW 2466	5298
19	U MINN-MNPLS-ST PAUL	F C OWENS	HQ	S BANERJEE	NGT 00-050-421	5322
19	MISSISSIPPI STATE U	D CARTER	MSFC	W WILSON	NAG 8-965	5355
19	MISSISSIPPI STATE U	J A SALZMAN	LERC	R A ALTENKIRCH	NCC 3-221	5361
19	PEARL RIVER JR COL	R GALE	SSC	J COLEMAN	NAG13-23	5366
19	UNIV SOUTHERN MISS	J P DOWNEY	MSFC	L J MATHIAS	NAG 8-973	5373
19	WASHINGTON UNIV	J A NUTH	HQ	F A PODOSEK	NAGW 2304	5420
19	WASHINGTON UNIV	W L QUAIDE	HQ	C M HOHENBERG	NAGW 2333	5421
19	WASHINGTON UNIV	W L QUAIDE	HQ	W H SMITH	NAGW 2423	5422
19	WASHINGTON UNIV	W V JONES	HQ	J J BEATTY	NAGW 2990	5430
19	WASHINGTON UNIV	J A NUTH	HQ	M B FEGLEY	NAGW 3070	5434
19	U NEBRASKA-LINCOLN	S H GOLDSTEIN	JSC	R R BISHU	NAG 9-633	5486
19	DARTMOUTH COLLEGE	G D BULLOCK	GSFC	B SONNERUP	NAG 5-1508	5521
19	UNIV NEW HAMP-DURHAM	F GORDON	GSFC	D J FORREST	NAG 5-720	5549
19	UNIV NEW HAMP-DURHAM	J D SCUDDER	GSFC	R B TORBERT	NAG 5-1426	5550
19	UNIV NEW HAMP-DURHAM	G D BULLOCK	GSFC	E MOBIUS	NAG 5-1548	5552
19	UNIV NEW HAMP-DURHAM	L J EARLY	GSFC	R L ARNOLDY	NAG 6-12	5562
19	RUTGERS ST U-NEWARK	F C OWENS	HQ	R AVISSAR	NGT 00-050-542	5705
19	RUTGERS ST U-PISCTWY	J A NUTH	HQ	R H HEWINS	NAGW 2263	5709
19	NEW MEX HIGHLANDS U	F SIX	MSFC	B TAYLOR	NAG 8-196	5720
19	NEW MEX ST U-LAS CR	J LAUDADIO	GSFC	R GOLDEN	NAS 5-31274	5762
19	UNIV NEW MEX	I D BROWNE	JSC	J J PAPIKE	NAG 9-497	5794
19	UNIV NEW MEX	J D BOHLIN	HQ	H S AHLUWALIA	NAGW 1468	5795
19	UNIV NEW MEX	J A NUTH III	HQ	F J RIETMEIJER	NAGW 3646	5800
19	CLARKSON UNIV	M E HILL	LERC	R S SUBRAMANIAN	NAG 3-1122	5826
19	CLARKSON UNIV	F R SZOFRAN	MSFC	W R WILCOX	NAG 8-831	5830
19	COLUMBIA UNIV	I D BROWNE	JSC	J LONGHI	NAG 9-329	5863
19	COLUMBIA UNIV	G C CLAYTON	HQ	C MARTIN	NAGW 1887	5874
19	CORNELL UNIV	A T CHAI	LERC	P H STEEN	NAG 3-1401	5944
19	CORNELL UNIV	J I TROMBKA	GSFC	S W SQUYRES	NAG 5-1307	5952
19	CORNELL UNIV	G D BULLOCK	GSFC	M G KELLEY	NAG 5-1545	5955
19	CORNELL UNIV	J A NUTH	HQ	LOVELACE	NAGW 2293	5981
19	CORNELL UNIV	W L QUAIDE	HQ	S SQUYRES	NAGW 2374	5983
19	CORNELL UNIV	W L QUAIDE	HQ	P D NICHOLSON	NAGW 2434	5984
19	CORNELL UNIV	W L QUAIDE	HQ	P J GIERASCH	NAGW 2916	5990
19	CORNELL UNIV	J T BERGSTRALH	HQ	C SAGAN	NAGW 3273	5993
19	CORNELL UNIV	H C BRINTON	HQ	S W SQUYRES	NAGW 3283	5996
19	CORNELL UNIV	L J EARLY	GSFC	M C KELLEY	NSG-6020	6030
19	POLY INST OF NY	A L FRIPP	LARC	D M SCHLEICH	NAG 1-1387	6048
19	ST U NY-STONY BROOK	J A NUTH	HQ	R F KNACKE	NAGW 2334	6174
19	ST U NY-STONY BROOK	W L QUAIDE	HQ	J L FOX	NAGW 2483	6175
19	ST U NY-STONY BROOK	J A NUTH	HQ	F WALTER	NAGW 3165	6178
19	ST U NY C-PLTTSBRGH	I D BROWNE	JSC	G J FLYNN	NAG 9-459	6188
19	SYRACUSE UNIV	S K ROBINSON	LARC	E F SPINA	NAG 1-1400	6197
19	DUKE UNIV	D CARTER	MSFC	D C RICHARDSON	NAG 8-966	6231
19	NO CAROLINA A&T ST U	C HERMAN	JSC	J FOSTER	NAG 9-334	6264
19	NO CAROLINA A&T ST U	E EMANUEL	JSC	P LALA	NAG 9-504	6265
19	NC ST U.-RALEIGH	A L FRIPP	LARC	K J BACHMANN	NAG 1-1100	6280
19	NC ST U.-RALEIGH	S M WANDER	HQ	R DEJARNETTE	NAGW 1072	6297

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19	NC ST U.-RALEIGH	G MADDREA	LARC	V SAXENA	NAS 1-18944	6305
19	CASE WESTERN RES U	R W LAUVER	LERC	D H MATTHIESEN	NAG 3-1478	6397
19	CASE WESTERN RES U	C A STEARNS	LERC	P PIROUZ	NCC 3-73	6411
19	CASE WESTERN RES U	A J DECKER	LERC	E M HAACKE	NCC 3-103	6417
19	CENTRAL ST U-OHIO	J A SALZMAN	LERC	M M GIRGIS	NAG 3-1463	6476
19	HEIDELBERG COLLEGE	B J MCBRIDE	LERC	M A RENO	NCC 3-174	6541
19	KENT ST U	A F HEPP	LERC	C V ABURTO	NCC 3-318	6550
19	OHIO ST U	G D BULLOCK	GSFC	W E MITCHELL JR.	NAG 5-1326	6587
19	OHIO ST U	S M WANDER	HQ	S L PETRIE	NAGW 1060	6600
19	UNIV CINCINNATI	J POUCH	LERC	V J KAPOOR	NCC 3-33	6716
19	UNIV DAYTON	J A SALEMAN	LERC	K P HALLINAN	NAG 3-1391	6729
19	UNIV TOLEDO	W E MORREN	LERC	K J DEWITT	NAG 3-577	6735
19	UNIV TOLEDO	R L THOMPSON	LERC	K J DEWITT	NAG 3-1501	6756
19	WILBERFORCE UNIV	A F HEPP	LERC	R L GLENN	NCC 3-281	6780
19	UNIV OKLAHOMA-NORMAN	E I MADARAS	LARC	R A KLINE	NAG 1-1054	6789
19	UNIV OKLAHOMA-NORMAN	P H JOHNSTON	LARC	R A KLINE	NAG 1-1375	6790
19	CARNEGIE-MELLON UNIV	J A SALZMAN	LERC	S GAROFF	NAG 3-1390	6875
19	CARNEGIE-MELLON UNIV	R L THOMPSON	LERC	N CHIGIER	NAG 3-1505	6877
19	CARNEGIE-MELLON UNIV	T MILLER	MSFC	J L ANDERSON	NAG 8-964	6879
19	DREXEL UNIV	F C OWENS	HQ	D PERKEY	NGT 00-050-860	6917
19	PA ST U.-UNIV. PARK	L J EARLY	GSFC	J D MITCHELL	NAG 6-7	7005
19	PA ST U.-UNIV. PARK	J A NUTH	HQ	E D FEIGELSON	NAGW 2280	7029
19	PA ST U.-UNIV. PARK	J A NUTH	HQ	A WOLSZCZAN	NAGW 3405	7042
19	ST. VINCENT C & SEMI	W B KRABILL	GSFC	R E BERRY	NAG 5-689	7089
19	UNIV PENNSYLVANIA	I D BROWNE	JSC	R MIDDLETON	NAG 9-608	7095
19	UNIV PITTSBURGH	A T CHAI	LERC	D JASNOW	NAG 3-1403	7105
19	UNIV PITTSBURGH	D NOEVER	MSFC	X L WU	NAG 8-959	7113
19	BROWN UNIV	I D BROWNE	JSC	M J RUTHERFORD	NAG 9-575	7150
19	BROWN UNIV	W L QUAIDE	HQ	J HEAD	NAGW 2500	7162
19	BROWN UNIV	M C LEE	HQ	C ELBAUM	NAGW 3331	7164
19	CLEMSON UNIV-CLEMSON	I D BROWNE	JSC	D D CLAYTON	NAG 9-414	7225
19	CLEMSON UNIV-CLEMSON	J A NUTH	HQ	D D CLAYTON	NAGW 2305	7227
19	SO DAKOTA SCHL MINES	B A WIELICKI	LARC	R M WELCH	NAS 1-19077	7262
19	UNIV TENN-KNOXVILLE	I D BROWNE	JSC	L A TAYLOR	NAG 9-415	7312
19	UNIV TENN-KNOXVILLE	J K ALEXANDER	HQ	H Y MCSWEEN	NAGW 2800	7315
19	VANDERBILT UNIV	J A NUTH	HQ	D A WEINTRAUB	NAGW 3385	7350
19	LAMAR UNIV	T A SULLIVAN	JSC	J JORDAN	NAG 9-699	7386
19	PRAIRIE VIEW A&M U	R E HARTLE	GSFC	T S HUANG	NAG 5-2317	7388
19	PRAIRIE VIEW A&M U	C HERMAN	JSC	F C WANG	NAG 9-332	7391
19	PRAIRIE VIEW A&M U	E EMANUEL	JSC	A KUMAR	NAG 9-500	7393
19	RICE UNIV	G D BULLOCK	GSFC	P REIFF	NAG 5-775	7400
19	RICE UNIV	W L QUAIDE	HQ	H VOIGT	NAGW 2893	7427
19	RICE UNIV	H C BRINTON	HQ	J W CHAMBERLAIN	NAGW 3536	7431
19	TEXAS A&M UNIV	H C NEEDLEMAN	GSFC	J NOEL	NAG 5-655	7484
19	TEXAS A&M UNIV	A M VILLAMIL	HQ	A D PATTON	NAGW 1194	7518
19	UNIV HOUSTON	R L BOND	JSC	L BELL	NAG 9-591	7608
19	U TX-AUSTIN	J A SALZMAN	LERC	H L SWINNEY	NAG 3-1382	7701
19	U TX-AUSTIN	J J DEGNAN	GSFC	R J EANES	NAG 5-2146	7714
19	U TX-AUSTIN	R G FORMAN	JSC	E BECKER	NAG 9-463	7722
19	U TX-AUSTIN	J A NUTH	HQ	W D COCHRAN	NAGW 2302	7744
19	U TX-AUSTIN	J A NUTH	HQ	P M HARVEY	NAGW 2323	7746
19	U TX-DALLAS	G D BULLOCK	GSFC	W HANSON	NAG 5-305	7809
19	U TX-DALLAS	G D BULLOCK	GSFC	R A HEELIS	NAG 5-306	7810
19	U TX-DALLAS	T L AGGSON	GSFC	W B HANSON.	NAG 5-1641	7811
19	U TX-DALLAS	W L QUAIDE	HQ	R R HODGES	NAGW 2371	7815
19	U TX-DALLAS	W L QUAIDO	HQ	R R HODGES	NAGW 2534	7818
19	U TX-DALLAS	W L QUAIDE	HQ	R R HODGES	NAGW 2535	7819
19	U TX-DALLAS	R C BLANCHARD	LARC	J H HOFFMAN	NAS 1-17399	7822
19	UTAH ST U	G D BULLOCK	GSFC	A R BARAKAT	NAG 5-1546	7886
19	UTAH VALLEY COMTY C	J L CREWS	JSC	T W LEE	NAG 9-496	7903

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19	C-WILLIAM AND MARY	E J PRIOR	LARC		NAS 1-19656	7931
19	C-WILLIAM AND MARY	S A LONG	LARC	R L KIEFER	NCC 1-151	7937
19	HAMPTON UNIV	C HERMAN	JSC	A A ADEYIGA	NAG 9-333	7976
19	OLD DOMINION UNIV	D S MILLER	LARC	O BAYSAL	NAG 1-1150	8007
19	UNIV VIRGINIA	A L FRIPP	ARC	W A JESSER	NAG 1-350	8063
19	UNIV VIRGINIA	J A NUTH	GSFC	L U LILLELEHT	NAG 5-865	8088
19	UNIV VIRGINIA	J A NUTH	HQ	B DONN	NAGW 2313	8110
19	UNIV VIRGINIA	D WILLIAMS	GSFC	H H SHUGART	NAS 5-30787	8117
19	VA PLOY INST & ST U	A L FRIPP	LARC	D DIPLAS	NAG 1-1084	8181
19	VIRGINIA ST U	J W WILSON	LARC	C E STRONACH	NAG 1-416	8267
19	VIRGINIA ST U	J W WILSON	LARC	J J STITH	NAG 1-765	8268
19	UNIV WASHINGTON	W L QUAIDE	HQ	C LEOVY	NAGW 2550	8344
19	UNIV WASHINGTON	W L QUAIDE	HQ	J E TILLMAN	NAGW 2982	8355
19	UNIV WASHINGTON	H C BRINTON	HQ	J E TILLMAN	NAGW 3381	8363
19	UNIV WASHINGTON	J A NUTH III	HQ	D BROWNLEE	NAGW 3636	8368
19	UNIV WASHINGTON	G MADDREA	LARC	P V HOBBS	NAS 1-18940	8375
19	WEST VIRGINIA ST COL	J F SUTTON	GSFC	C SPANIOL	NAG 5-1267	8449
19	WEST VIRGINIA UNIV	A T CHAI	LERC	M J LYELL	NAG 3-1005	8453
19	MARQUETTE UNIV	S L LEHOCZKY	MSFC	R F BREBRICK	NAG 8-875	8481
19	UNIV WISC-MADISON	W L QUAIDE	HQ	L A SROMOVSKY	NAGW 2411	8562
21	UNIV ALA-HUNTSVILLE	T KOVACEVICH	MSFC	M V BOWER	NAG 8-850	1113
21	UNIV ALA-HUNTSVILLE	D K RUSSELL	HQ	R MCNIDER	NGT 00-070-366	1177
21	UNIV OF ARIZONA	D A HOLLAND	HQ	J C BAYGENTS	NGT 00-051-122	1551
21	UNIV CALIF-BERKELEY	M M WEISLOGEL	LERC	P CONCUS	NAG 3-1143	2051
21	UNIV CAL-SAN DIEGO	S H GOLDSTEIN	JSC	J M RICLES	NAG 9-470	2518
21	UNIV COL-DENVER	F C OWENS	HQ	S F MCCORMICK	NGT 00-050-403	3079
21	CLARK ATLANTA UNIV	J N SHOOSMITH	LARC	R E MICKENS	NAG 1-410	3469
21	CLARK ATLANTA UNIV	J W GOODRICH	LERC	R E MICKENS	NAG 3-1411	3472
21	NORTHWESTERN UNIV	F C OWENS	HQ	S H DAVIS	NGT 00-050-769	3770
21	NORTHWESTERN UNIV	F C OWENS	HQ	S H DAVIS	NGT 00-050-781	3771
21	NORTHWESTERN UNIV	J ALEXANDER	HQ	B J MATROWSKI	NGT 00-050-902	3772
21	NORTHWESTERN UNIV	B CARPENTER	HQ	B CARPENTER	NGT 00-051-083	3774
21	UNIV ILLINOIS URBANA	H D ROSS	LERC	J BUDCMERTOR	NAG 3-1247	3900
21	UNIV MD-COLLEGE PARK	F C OWENS	HQ	L KANAL	NGT 00-050-718	4614
21	UNIV MD-COLLEGE PARK	B SOFFEN	GSFC	C GREBOGI	NGT 00-070-283	4627
21	MASS INST OF TECH	H ASHKENAS	JPL	R STANLEY	NGT 00-050-693	4967
21	NORTHEASTERN UNIV	F C OWENS	HQ	M MATALON	NGT 00-050-608	4988
21	U MICHIGAN-ANN ARBOR	J L THOMAS	LARC	B VAN LEER	NAG 1-869	5104
21	MISSISSIPPI STATE U	R E SMITH JR	LARC	J F THOMPSON	NSG-1577	5364
21	RENSSELAER POLY INST	P HUNTER	HQ	D W SCHWENDEMAN	NGT 00-051-167	6090
21	ST U NY-BINGHAMTON	F C OWENS	HQ	G KLIR	NGT 00-050-756	6135
21	DUKE UNIV	W F FORD	LERC	D A SMITH	NSG-3160	6249
21	FAYETTEVILLE ST U	D GALLAWAY	HQ	L EDWARDS	NAGW 3083	6252
21	NC ST U.-RALEIGH	T EDWARDS	ARC	D S MCRAE	NCA 2-719	6308
21	UNIV NC-GREENSBORO	J VERNIKOS	ARC	D A LUDWIG	NCA 2-629	6347
21	NORTH DAKOTA ST U	W F FORD	LERC	D K COPE	NAG 3-1312	6355
21	CASE WESTERN RES U	A J DECKER	LERC	S H IZEN	NAG 3-832	6370
21	UNIV AKRON	P J OUZTS	LERC	P H SCHMIDT	NAG 3-1146	6659
21	CARNEGIE-MELLON UNIV	F C OWENS	HQ	S A SHAFER	NGT 00-050-423	6889
21	PA ST U.-UNIV. PARK	D V GALLAWAY	HQ	M K HEID	NGT 00-051-016	7075
21	BROWN UNIV	J T LYNCH	HQ	P F FISHER	NGT 00-051-029	7184
21	CLEMSON UNIV-CLEMSON	J A PENNLINE	LERC	J K PETERSON	NAG 3-1311	7218
21	RICE UNIV	K KIRSHEN	JSC	R O WELLS	NAG 9-681	7419
21	U TX-AUSTIN	R E SMITH	LARC	J KALLINDERIS	NAG 1-1459	7691
21	GEORGE MASON UNIV	L BERKE	LERC	R A POLYAK	NAG 3-1397	7950
21	HAMPTON UNIV	J C HARDIN	LARC	A G MIAMEC	NAG 1-768	7964
21	HAMPTON UNIV	R E SMITH	LARC	M LAM	NAG 1-948	7966
21	OLD DOMINION UNIV	S E MASSENBERG	LARC	E M RUDISILL	NAG 1-1302	8013
21	UNIV VIRGINIA	J T LYNCH	HQ	J M ORTEGA	NGT 00-070-123	8151
21	UNIV VIRGINIA	D K RUSSELL	HQ	T PETERSON	NGT 00-070-339	8164

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22	ALA A&M UNIV	R WALKER	MSFC	J CAUFIELD	NAG 8-241	1015
22	AUBURN UNIV	D HOLLAND	HQ	C MCCREARY	NGT 00-051-149	1054
22	UNIV ALA-HUNTSVILLE	H M GOODMAN	MSFC	S J GRAVES	NAG 8-904	1118
22	UNIV ALA-HUNTSVILLE	R J KOCZOR	MSFC	S J GRAVES	NAS 8-38663	1153
22	UNIV ALA-HUNTSVILLE	H M GOODMAN	MSFC	S J GRAVES	NCC 8-21	1161
22	UNIV ALA-HUNTSVILLE	F C OWENS	HQ	S GRAVES	NGT 00-050-679	1167
22	UNIV OF ARIZONA	B N HOLBEN	GSFC	J A REAGAN	NAG 5-1712	1361
22	UNIV OF ARIZONA	J R FISCHER	GSFC	R A SCHOWENGERDT	NAG 5-2198	1367
22	UNIV OF ARIZONA	F C OWENS	HQ	T MILSTER	NGT 00-050-579	1533
22	UNIV OF ARIZONA	P HUNTER	HQ	R D SCHLICHTING	NGT 00-050-966	1548
22	CALIF INST OF TECH	L ORWIG	GSFC	G HURFORD	NAS 5-30792	1673
22	CALIF INST OF TECH	H BURRITT	GSFC	S DJORGOVSKI	NAS 5-31348	1674
22	CAL ST U-NORTHRIDGE	M HARTMAN	GSFC	D MILLER	NCA 5-116	1751
22	FOOTHILL-DEANZ SYS	D B MCKELLAR	ARC	P YASUDA	NCC 2-342	1762
22	FOOTHILL-DEANZ SYS	D B MCKELLER	ARC	P YASUDA	NCC 2-785	1763
22	SAN FRANCISCO ST U	P GRAMS	ARC	H SHAHNASSER	NCA 2-808	1791
22	SANTA CLARA UNIV	K G STEVENS JR.	ARC	H S ALKHATIB	NCC 2-644	1858
22	STANFORD UNIV	K G STEVENS JR.	ARC	S F LUNDSTROM	NAG 2-248	1867
22	STANFORD UNIV	P E FRIEDLAND	ARC	E A FEIGENBAUM	NAG 2-581	1869
22	STANFORD UNIV	H LUM	ARC	J MCCARTHY	NAG 2-703	1874
22	STANFORD UNIV	L B HOLCOMB	HQ	P M BANKS	NAGW 419	1893
22	STANFORD UNIV	D KWAK	ARC	J OLIGER	NCA 2-440	1931
22	STANFORD UNIV	D H BAILEY	ARC	G H GOLUB	NCA 2-571	1939
22	STANFORD UNIV	D H BAILEY	ARC	G H GOLUB	NCA 2-669	1949
22	STANFORD UNIV	P E FRIEDLAND	ARC	N J NILSSON	NCC 2-494	1978
22	STANFORD UNIV	P E FRIEDLAND	ARC	L LEIFER	NCC 2-514	1979
22	STANFORD UNIV	P E FRIEDLAND	ARC	B G BUCHANAN	NCC 2-537	1981
22	STANFORD UNIV	P E FRIEDLAND	ARC	E A FEIGENBAUM	NCC 2-749	1984
22	STANFORD UNIV	G ASRAR	HQ	G K YEH	NGT 00-030-115	1993
22	STANFORD UNIV	P HUNTER	HQ	M J FLYNN	NGT 00-050-964	2009
22	STANFORD UNIV	F C OWENS	HQ	M J FLYNN	NGT 00-070-244	2019
22	STANFORD UNIV	D K RUSSELL	HQ	R SHACHTER	NGT 00-070-342	2027
22	UNIV CALIF-BERKELEY	D E TWETEN	ARC	R H KATZ	NAG 2-591	2045
22	UNIV CALIF-BERKELEY	T S WOODROW	ARC	D FERRARI	NAG 2-763	2048
22	UNIV CALIF-BERKELEY	H BURRITT	GSFC	S CHAKRABARTI	NAS 5-31725	2156
22	UNIV CALIF-BERKELEY	P E FRIEDLAND	ARC	L ZADEH	NCC 2-275	2175
22	UNIV CALIF-BERKELEY	K G STEVENS	ARC	A J SMITH	NCC 2-550	2177
22	UNIV CALIF-BERKELEY	G ASRAR	HQ	A JUELS	NGT 00-030-107	2186
22	UNIV CALIF-DAVIS	H LUM	ARC	S J ALVARADO	NCA 2-721	2256
22	UNIV CALIF-IRVINE	D E ECKHARDT JR	LARC	N G LEVESON	NAG 1-668	2279
22	UNIV CALIF-IRVINE	J E DORBAND	GSFC	I D SCHERSON	NAG 5-1897	2291
22	UNIV CALIF-IRVINE	D K RUSSELL	HQ	D RICHARDSON	NGT 00-070-352	2313
22	UNIV CAL-LOS ANGELES	L E HYATT	GSFC	G APOSTOLAKIS	NAG 5-1440	2352
22	UNIV CAL-LOS ANGELES	J R FISCHER	GSFC	R MUNTZ	NAG 5-2225	2363
22	UNIV CAL-SAN DIEGO	J SCUDDER	GSFC	W FILLIUS	NAS 5-30549	2570
22	UNIV CAL-SAN DIEGO	D WEST	GSFC	D E GRUBER	NAS 5-32069	2572
22	UNIV CAL-SAN DIEGO	B SRIDHAR	ARC	R JAIN	NCC 2-792	2583
22	UNIV CAL-SAN DIEGO	G ASRAR	HQ	D J KRAIMAN	NGT 00-030-119	2590
22	U CAL-SANTA BARBARA	G ASRAR	HQ	Y CHEN	NGT 00-030-159	2659
22	U CAL-SANTA BARBARA	G ASRAR	HQ	H COUCLELIS	NGT 00-030-204	2660
22	U CAL-SANTA CRUZ	A VAZIRI	ARC	J WILHELMS	NCC 2-717	2691
22	UNIV SOUTHERN CALIF	P E FRIEDLAND	ARC	R NECHES	NAG 2-864	2706
22	UNIV SOUTHERN CALIF	P FRIEDLAND	ARC	P ROSENBLOOM	NCC 2-538	2734
22	UNIV SOUTHERN CALIF	H LUM	ARC	D W MIZELL	NCC 2-539	2735
22	UNIV SOUTHERN CALIF	P E FRIEDLAND	ARC	R NECHES	NCC 2-719	2736
22	UNIV SOUTHERN CALIF	H ASKHENES	GSFC	G A BEKEY	NGT 00-070-290	2740
22	COLORADO ST U	K A SMITH	LARC	J M BIEMAN	NAG 1-1461	2753
22	UNIV COL-BOULDER	P E FRIEDLAND	ARC	R KING	NAG 2-862	2811
22	UNIV COL-BOULDER	A C KELLY	GSFC	T P SPARN	NAG 5-1931	2865
22	UNIV COL-BOULDER	H BURRITT	GSFC	E HANSEN	NAS 5-31355	2991

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22	YALE UNIV	F C OWENS	HQ	D GELERNTER	NGT 00-050-719	3136
22	YALE UNIV	F C OWENS	HQ	P ANONDAN	NGT 00-050-749	3137
22	YALE UNIV	F C OWENS	HQ	D GELERNTER	NGT 00-050-858	3139
22	YALE UNIV	F C OWENS	HQ	D GELERNTER	NGT 00-050-859	3140
22	YALE UNIV	P HUNTER	HQ	S EISENSTAT	NGT 00-050-972	3141
22	EMORY UNIV	T A LASINSKI	ARC	V S SUNDERAM	NAG 2-828	3475
22	GEORGIA INST OF TECH	W F TRUSZKOWSKI	GSFC	C M MITCHELL	NAG 5-1044	3509
22	GEORGIA INST OF TECH	W J POTTER	GSFC	C M MITCHELL	NAG 5-2226	3512
22	GEORGIA INST OF TECH	A W STOFFEL	GSFC	C M MITCHELL	NAG 5-2227	3513
22	GEORGIA INST OF TECH	F C OWENS	HQ	R KANGARI	NGT 00-050-498	3548
22	GEORGIA INST OF TECH	D HOLLAND	HQ	K SCHWAN	NGT 00-051-154	3562
22	UNIV HAWAII-MANOA	M MEDIN	ARC	T N NELSON	NAS 2-13808	3692
22	UNIV HAWAII-MANOA	M NELSON	ARC	T N NELSON	NAS 2-13894	3693
22	NORTHWESTERN UNIV	K H ABBOTT	LARC	K D FORBUS	NAG 1-1343	3734
22	NORTHWESTERN UNIV	J R LEKASHMAN	ARC	P SCHEUERMANN	NAG 2-846	3736
22	NORTHWESTERN UNIV	J MALIN	JSC	K FORBUS	NAG 9-475	3751
22	UNIV ILLINOIS URBANA	W H BRYANT	LARC	J W LIU	NAG 1-613	3880
22	UNIV ILLINOIS URBANA	E F STOCKER	GSFC	M FOLK	NAG 5-2040	3914
22	UNIV ILLINOIS URBANA	J R FISCHER	GSFC	P E SAYLOR	NAG 5-2201	3916
22	UNIV ILLINOIS URBANA	A W STOFFEL	GSFC	P M JONES	NAG 5-2244	3917
22	UNIV ILLINOIS URBANA	J BREDEKAMP	GSFC	K BOWMAN	NAS 5-31340	3935
22	UNIV ILLINOIS URBANA	J BREDEKAMP	HQ	R WILHELMSON	NAS 5-31345	3936
22	UNIV ILLINOIS URBANA	H LUM	ARC	B W WAH	NCC 2-481	3943
22	UNIV ILLINOIS URBANA	F C OWENS	HQ	B W WAH	NGT 00-050-743	3951
22	UNIV ILLINOIS URBANA	F C OWENS	HQ	R K IYER	NGT 00-050-833	3952
22	UNIV ILLINOIS URBANA	S GOLDSTEIN	JSC	D GOLDBERG	NGT 00-050-873	3954
22	UNIV ILLINOIS URBANA	M MOORE	ARC	D A REED	NGT 00-051-023	3955
22	INDIANA U-BLOOMINGTN	F C OWENS	HQ	S D JOHNSON	NGT 00-050-861	3985
22	PURDUE UNIV	R E SMITH	LARC	C BAJAJ	NAG 1-1473	4001
22	PURDUE UNIV	J ALEXANDER	HQ	A ELMAGARMID	NGT 00-050-621	4050
22	PURDUE UNIV	F C OWENS	HQ	E N HOUSTIS	NGT 00-050-708	4052
22	PURDUE UNIV	F C OWENS	HQ	B BHARGAVA	NGT 00-050-779	4055
22	PURDUE UNIV	J ALEXANDER	HQ	E H SPAFFORD	NGT 00-050-919	4057
22	LA ST U-BATON ROUGE	A JOYCE	SSC	D L CARVER	NGT 00-051-015	4281
22	SOUTHERN U & A&M COL	M MARGOLIS	HQ	L ROQUEMORE	NGT 00-090-022	4292
22	TULANE UNIV	J R FISCHER	GSFC	B P BUCKLES	NAG 5-2216	4297
22	UNIV SOUTHWESTERN LA	A JOYCE	SSC	D MOREAU	NGT 00-051-007	4309
22	BOWIE STATE COLLEGE	W F TRUSZKOWSKI	GSFC	S SRIVASTAVA	NAG 5-2277	4317
22	BOWIE STATE COLLEGE	M MARGOLIS	HQ	C H KIRKSEY	NGT 00-090-016	4318
22	MORGAN ST U	D MENCHAN	GSFC	N WILLOUGHBY	NCA 5-113	4430
22	UNIV MD-COLLEGE PARK	E J PRIOR	LARC	J H SALTZ	NAG 1-1485	4451
22	UNIV MD-COLLEGE PARK	G W WALKER	LARC	C Z SUN	NAG 1-1521	4452
22	UNIV MD-COLLEGE PARK	S SAMADI	GSFC	A J FLEIG	NAG 5-2107	4514
22	UNIV MD-COLLEGE PARK	J R FISCHER	GSFC	J M STONE	NAG 5-2202	4516
22	UNIV MD-COLLEGE PARK	J BREDEKAMP	GSFC	J KINTER	NAS 5-31341	4590
22	UNIV MD-COLLEGE PARK	H LUM	ARC	L S DAVIS	NCC 2-560	4599
22	UNIV MD-COLLEGE PARK	D M BUTLER	HQ	Y QIAN	NGT 00-030-038	4607
22	UNIV MD-COLLEGE PARK	G ASRAR	HQ	A C SOFFER	NGT 00-030-130	4609
22	UNIV MD-COLLEGE PARK	F C OWENS	HQ	B SHNEIDERMAN	NGT 00-050-762	4617
22	UNIV MD-COLLEGE PARK	R PAJERSKI	GSFC	V R BASILI	NSG-5123	4629
22	MASS INST OF TECH	P E FRIEDLAND	ARC	L R YOUNG	NCC 2-570	4948
22	MASS INST OF TECH	F C OWENS	HQ	R A BROOKS	NGT 00-050-835	4969
22	UNIV MASS-AMHERST	H LUM	ARC	J F KUROSE	NAG 2-595	5001
22	UNIV MASS-AMHERST	P E FRIEDLAND	ARC	P E UTGOFF	NCC 2-658	5026
22	UNIV MASS-AMHERST	D K RUSSELL	HQ	P COHEN	NGT 00-070-358	5035
22	WORCESTER POLY INST	S C JOHNSON	LARC	P E GREEN	NAG 1-964	5054
22	WORCESTER POLY INST	G CHIN	GSFC	F U BORIAKOFF	NAG 5-1138	5056
22	HOPE COLLEGE	D E ECKHARDT	LARC	M J JIPPING	NAG 1-1480	5066
22	MICHIGAN TECH U	E BARSZCZ	ARC	S R SEIDEL	NAG 2-757	5082
22	U MICHIGAN-ANN ARBOR	R W BUTLER	LARC	K G SHIN	NAG 1-296	5102

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22	U MICHIGAN-ANN ARBOR	R W BUTLER	LARC	K G SHIN	NAG 1-492	5103
22	U MICHIGAN-ANN ARBOR	A L WHITE	LARC	K G SHIN	NAG 1-1220	5105
22	U MICHIGAN-ANN ARBOR	A L WHITE	LARC	K G SHIN	NAG 1-1493	5114
22	U MICHIGAN-ANN ARBOR	P E FRIEDLAND	ARC	R A VOLZ	NCC 2-517	5221
22	U MICHIGAN-ANN ARBOR	S GOLDSTEIN	JSC	J T HOLLAND	NGT 00-051-057	5241
22	U MICHIGAN-ANN ARBOR	D HOLLAND	HQ	E A RUNDENSTEINER	NGT 00-051-126	5244
22	WAYNE ST U	D HOLLAND	HQ	R G REYNOLDS	NGT 00-051-074	5259
22	WESTERN MICHIGAN U	J E HOLLANSWORTH	LERC	M C KERSTETTER	NAG 3-1025	5260
22	U MINN-MNPLS-ST PAUL	J K ALEXANDER	HQ	D A YUEN	NAGW 1584	5293
22	U MINN-MNPLS-ST PAUL	F C OWENS	HQ	J V CARLIS	NGT 00-050-785	5326
22	JACKSON ST U	F C OWENS	HQ	M H GRIFFIN	NGT 00-050-638	5336
22	MISSISSIPPI STATE U	T A LASINSKI	ARC	M L STOKES	NAG 2-824	5341
22	MISS VALLEY STATE U	F SIX	MSFC	R WILLIAMS	NAG 8-225	5365
22	DARTMOUTH COLLEGE	R E VANCLEEF	ARC	M A BISHOP	NAG 2-628	5517
22	DARTMOUTH COLLEGE	M MOORE	ARC	D KOTZ	NGT 00-051-176	5543
22	PRINCETON UNIV	D K RUSSELL	HQ	G KARNIADAKIS	NGT 00-070-289	5685
22	RUTGERS ST U-N BRNSK	P E FRIEDLAND	ARC	S AMAREL	NAG 2-645	5688
22	RUTGERS ST U-N BRNSK	H LUM	ARC	S Y LEVY	NAG 2-668	5689
22	RUTGERS ST U-N BRNSK	T A LASINSKI	ARC	D SILVER	NAG 2-829	5692
22	RUTGERS ST U-N BRNSK	P E FRIEDLAND	ARC	T ELLMAN	NCC 2-802	5698
22	CITY U OF NY-STN ISL	B JACOBS	GSFC	M TAUSNER	NAG 5-2291	5821
22	CLARKSON UNIV	F C OWENS	HQ	W R WILCOX	NGT 00-070-167	5838
22	COLUMBIA UNIV	F C OWENS	HQ	G E KAISER	NGT 00-050-583	5912
22	CORNELL UNIV	H LUM	ARC	K P BIRMAN	NAG 2-593	5927
22	CORNELL UNIV	H LUM	ARC	S W BRIM	NAG 2-650	5928
22	CORNELL UNIV	G L WEEGMANN	LERC	A HANUSHEVSKY	NAG 3-1358	5943
22	CORNELL UNIV	F C OWENS	HQ	R L CONSTABLE	NGT 00-050-786	6015
22	NEW YORK UNIV	D E ECKHARDT	LARC	E WEYUKER	NAG 1-1238	6037
22	NIAGARA UNIV	R BLAKESLEE	MSFC	W L BOECK	NCC 8-24	6046
22	RENSSELAER POLY INST	J L ROGERS	LARC	P HAJELA	NAG 1-1269	6055
22	RENSSELAER POLY INST	D K RUSSELL	HQ	B SZYMANSKI	NGT 00-070-334	6092
22	SYRACUSE UNIV	K G STEVENS	ARC	G C FOX	NAG 2-821	6199
22	SYRACUSE UNIV	F C OWENS	HQ	M MONMONIER	NGT 00-050-549	6209
22	APPALACHIAN ST U	T S ABBOTT	LARC	C R RUSSELL	NAG 1-1321	6224
22	DUKE UNIV	A PATTERSON-HINE	ARC	J B DUGAN	NCA 2-617	6239
22	DUKE UNIV	M A BOYD	ARC	J B DUGAN	NCA 2-825	6240
22	NC ST U.-RALEIGH	D E ECKHARDT	LARC	M A VOUK	NAG 1-983	6279
22	CASE WESTERN RES U	D J ARPASI	LERC	C A PAPACHRISTOU	NAG 3-1103	6377
22	CASE WESTERN RES U	M D BETHEA	LERC	K VADAPARTY	NCC 3-264	6444
22	CLEVELAND ST U	K SCHUBERT	LERC	J D SCHOEFFLER	NAG 3-1145	6484
22	CLEVELAND ST U	G YOLKN	LERC	J SCHOEFFLER	NAG 3-1441	6490
22	KENT ST U	F N GOLDBERG	LERC	C M BAKES	NCC 3-235	6549
22	KENT ST U	P HUNTER	HQ	J POTTER	NGT 00-051-161	6551
22	OHIO ST U	B P CURLETT	LERC	F OZGUNER	NAG 3-1369	6576
22	OHIO ST U	G J FOLLEN	LERC	F OZGUNER	NAG 3-1440	6580
22	OHIO ST U	J MALIN	JSC	D D WOODS	NAG 9-390	6595
22	OHIO ST U	J MALIN	JSC	D D WOODS	NAG 9-677	6596
22	UNIV CINCINNATI	N SLIWA	KSC	H T THURMAN	NAG10-124	6711
22	UNIV TOLEDO	G H STEVENS	LERC	S C KWATRA	NAG 3-157	6734
22	OREGON ST U	P E FRIEDLAND	ARC	T G DIETRICH	NAG 2-630	6808
22	PORTLAND ST U	M G SHAFTO	ARC	J SCHOLTZ	NCA 2-692	6856
22	CARNEGIE-MELLON UNIV	J M VRANISH	GSFC	F PRINZ	NAG 5-1468	6878
22	CARNEGIE-MELLON UNIV	P E FRIEDLAND	ARC	S F SMITH	NCC 2-707	6886
22	CARNEGIE-MELLON UNIV	P HUNTER	HQ	H T KUNG	NGT 00-050-965	6894
22	CARNEGIE-MELLON UNIV	M MOORE	ARC	S A SHAFER	NGT 00-051-026	6897
22	CARNEGIE-MELLON UNIV	P HUNTER	HQ	J M PEHA	NGT 00-051-162	6900
22	BROWN UNIV	T A LASINSKI	ARC	A DAM	NAG 2-830	7144
22	BROWN UNIV	F C OWENS	HQ	J S VITTER	NGT 00-050-420	7177
22	CLEMSON UNIV-CLEMSON	S H GOLDSTEIN	JSC	J K PETERSON	NAG 9-559	7226
22	CLEMSON UNIV-CLEMSON	F C OWENS	HQ	W B LIGON	NGT 00-050-419	7238

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22	MEMPHIS ST U	S H GOLDSTEIN	JSC	D L SMITH	NAG 9-646	7282
22	TENNESSEE TECH U	R JUDAY	JSC	P K BAJAN	NAG 9-710	7296
22	UNIV TENN-KNOXVILLE	B E JACOBS	GSFC	J DONGARA	NAG 5-2083	7306
22	VANDERBILT UNIV	P E FRIEDLAND	ARC	D H FISHER	NAG 2-834	7332
22	VANDERBILT UNIV	P E FRIEDLAND	ARC	D H FISHER	NCC 2-645	7351
22	RICE UNIV	F C OWENS	HQ	W ZWAENEPOEL	NGT 00-050-572	7439
22	RICE UNIV	F C OWENS	HQ	W ZWAENEPOEL	NGT 00-050-580	7440
22	RICE UNIV	F C OWENS	HQ	J BENNETT	NGT 00-050-746	7443
22	TEXAS A&M UNIV	A GOFOZTH	ARC	W WEIZHAO	NCC 2-770	7537
22	TEXAS A&M UNIV	A GOFORTH	ARC	R A VOLZ	NCC 2-791	7538
22	TEXAS A&M UNIV	F C OWENS	HQ	J YEN	NGT 00-050-738	7545
22	TEXAS A&M UNIV	F C OWENS	HQ	G YEN	NGT 00-050-837	7546
22	TEXAS A&M UNIV-SYSTM	G ASRAR	HQ	J W HARDIN	NGT 00-030-012	7567
22	TEXAS TECH UNIV	R N LEA	JSC	S MITRA	NAG 9-590	7581
22	UNIV HOUSTON	R T SAVELY	JSC	R B LOFTIN	NAG 9-405	7591
22	UNIV HOUSTON	C CULBERT	JSC	R B LOFTIN	NAG 9-713	7618
22	U HOUSTON-CLEAR LAKE	P A MARTINEZ	JSC	S DAVARI	NAG 9-584	7673
22	U HOUSTON-CLEAR LAKE	R B MACDONALD	JSC	E T DICKERSON	NCC 9-16	7675
22	U TX-ARLINGTON	E PRIOR	LARC	S M YANG	NGT 00-050-896	7685
22	U TX-AUSTIN	J R FISCHER	GSFC	M G PANDY	NAG 5-2217	7715
22	U TX-AUSTIN	J T EDGE	JSC	M MALEK	NAG 9-426	7720
22	U TX-AUSTIN	J T MALIN	JSC	B J KUIPERS	NAG 9-512	7724
22	U TX-AUSTIN	J T MALIN	JSC	B KUIPERS	NAG 9-665	7729
22	U TX-AUSTIN	P E FRIEDLAND	ARC	R MOONEY	NCC 2-629	7771
22	U TX-AUSTIN	P E FRIEDLAND	ARC	B J KUIPERS	NCC 2-760	7772
22	U TX-AUSTIN	F C OWENS	HQ	B E SCHUTZ	NGT 00-050-422	7781
22	U TX-AUSTIN	F C OWENS	HQ	R F SIMMONS	NGT 00-050-594	7785
22	U TX-AUSTIN	F C OWENS	HQ	R MOONEY	NGT 00-050-732	7788
22	U TX-EL PASO	D LAWLER	JSC	S A STARKS	NAG 9-479	7829
22	U TX-EL PASO	R N LEA	JSC	V KREINOVICH	NAG 9-482	7831
22	UNIV UTAH	J R FISCHER	GSFC	V J MATHEWS	NAG 5-2200	7870
22	NORWICH UNIV	D STILWELL	JSC	P N BARTRAM	NAG 9-312	7909
22	C-WILLIAM AND MARY	D E ECKHARDT	LARC	K W MILLER	NAG 1-884	7924
22	C-WILLIAM AND MARY	R J KEYNTON	LARC	D M NICHOL	NAG 1-995	7925
22	C-WILLIAM AND MARY	W H BRYANT	LARC	D M NICHOL	NAG 1-1060	7927
22	C-WILLIAM AND MARY	P C SCHUTTE	LARC	S FEYOCK	NCC 1-159	7938
22	C-WILLIAM AND MARY	E PRIOR	LARC	S PARK	NGT 00-070-170	7941
22	C-WILLIAM AND MARY	E J PRIOR	LARC	S K PARK	NGT 00-070-247	7943
22	C-WILLIAM AND MARY	D K RUSSELL	HQ	S FEYOCK	NGT 00-070-306	7945
22	GEORGE MASON UNIV	W TRUSZKOWSKI	GSFC	H GOMMA	NAG 5-2247	7954
22	GEORGE MASON UNIV	J R FISCHER	GSFC	D H SCHAEFER	NAG 5-2327	7956
22	HAMPTON UNIV	W H BRYANT	LARC	R CEZZAR	NAG 1-949	7967
22	OLD DOMINION UNIV	D E ECKHARDT	LARC	C D WILD	NAG 1-439	7993
22	OLD DOMINION UNIV	N D MURRAY	LARC	K MALY	NAG 1-908	8000
22	OLD DOMINION UNIV	W H BRYANT	LARC	R MUKKAMALA	NAG 1-1114	8004
22	OLD DOMINION UNIV	D E ECKHARDT	LARC	C WILD	NAG 1-1426	8016
22	OLD DOMINION UNIV	L F ROWELL	LARC	J L SCHWING	NCC 1-99	8031
22	UNIV RICHMOND	C M HOLLOWAY	LARC	A CHARLESWORTH	NAG 1-774	8061
22	UNIV VIRGINIA	W H BRYANT	LARC	J M ORTEGA	NAG 1-242	8062
22	UNIV VIRGINIA	D E ECKHARDT	LARC	J C KNIGHT	NAG 1-1123	8069
22	UNIV VIRGINIA	J J LAMBIOTTE	LARC	J M ORTEGA	NAG 1-1529	8075
22	UNIV VIRGINIA	T A LASINSKI	ARC	R PAUSCH	NAG 2-845	8078
22	UNIV VIRGINIA	C R ELKS	LARC	B W JOHNSON	NCC 1-173	8121
22	UNIV VIRGINIA	P HUNTER	HQ	A S GRIMSHAW	NGT 00-050-970	8143
22	UNIV VIRGINIA	G SOFFEN	GSFC	J C FRENCH	NGT 00-051-018	8144
22	UNIV VIRGINIA	P HUNTER	HQ	A S GRIMSHAW	NGT 00-051-163	8150
22	UNIV VIRGINIA	D K RUSSELL	HQ	J C FRENCH	NGT 00-070-286	8161
22	UNIV WASHINGTON	D E ECKHARDT	LARC	N G LEVESON	NAG 1-1495	8279
22	UNIV WASHINGTON	T A LASINSKI	ARC	G TURKIYYAH	NAG 2-831	8286
22	UNIV WASHINGTON	G ASRAR	HQ	E RISKIN	NGT 00-030-178	8407

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22	UNIV WASHINGTON	F C OWENS	HQ	S HANKS	NGT 00-050-822	8421
22	UNIV WASHINGTON	D K RUSSELL	HQ	N LEVESON	NGT 00-070-357	8428
22	WASHINGTON ST U	P E FRIEDLAND	ARC	J C SCHLIMMER	NCC 2-794	8440
22	WEST VIRGINIA UNIV	J GITELMAN	GSFC	J T JUREWICZ	NAG 5-2129	8455
22	MARQUETTE UNIV	J R FISCHER	GSFC	X FENG	NAG 5-2199	8477
22	UNIV WISC-MADISON	H L NQUYEN	LERC	R D REITZ	NAG 3-1087	8498
22	UNIV WISC-MADISON	J BREDEKAMP	GSFC	S LIMAYE	NAS 5-31347	8594
22	UNIV WISC-MADISON	S GOLDSTEIN	JSC	H YUTTEN	NGT 00-051-177	8617
22	UNIV WYOMING	S H GOLDSTEIN	JSC	M MAGEE	NAG 9-634	8634
29	ALA A&M UNIV	G H FICHTL	MSFC	E C TEMPLE	NAG 8-200	1010
29	TUSKEGEE UNIV	B WALKER	MSFC	C J WANG	NAG 8-296	1062
29	UNIV ALA-HUNTSVILLE	S L LEHOCZKY	MSFC	F E ROSENBERGER	NAG 8-790	1107
29	UNIV ALA-HUNTSVILLE	J W KAUFMAN	MSFC	R T MC NIDER	NAS 8-36718	1144
29	ARIZONA ST U	R E SMITH	LARC	R E BARNHILL	NAG 1-1153	1254
29	CAL POLY ST U-S LUIS	L J SCHILLING	ARC	D BIEZAD	NAG 2-833	1709
29	SAN JOSE ST U	Y BARNIV	ARC	Y BARAM	NCC 2-703	1843
29	STANFORD UNIV	G C OLSEN	LARC	T J HUGHES	NAG 1-361	1864
29	STANFORD UNIV	J O LARIMER	ARC	A M PETERSON	NCC 2-777	1985
29	UNIV CALIF-BERKELEY	H ASHKENAS	JPL	L A ZADEU	NGT 00-050-892	2204
29	U CAL-SANTA CRUZ	J E DORBAND	GSFC	R ABRAHAM	NAG 5-1749	2665
29	GEORGE WASHINGTON U	M D SALAS	LARC	R LOHNER	NAG 1-1386	3173
29	CATHOLIC UNIV	L PURVES	GSFC	C C NGUYEN	NAG 5-1415	3226
29	UNIV DIST COLUMBIA	Y B FREEMAN	HQ	W R COLEMAN	NAGW 2045	3238
29	UNIV MIAMI	M R LEWIS	HQ	R H EVANS	NAGW 1777	3427
29	UNIV SOUTH FLORIDA	J F BARTHELEMY	LARC	W C CARPENTER	NAG 1-1378	3447
29	GEORGIA INST OF TECH	G R HIGGINS	MSFC	W PUTNAM	NAG 8-194	3514
29	GEORGIA INST OF TECH	M RUDISILL	JSC	C M MITCHELL	NAG 9-422	3521
29	GEORGIA INST OF TECH	T BENTSEN	HQ	W D HUNT	NAGW 2753	3524
29	UNIV GEORGIA	B F HANNAN	HQ	J GIBSON	NASW 4670	3610
29	ILL BENEDICTINE COL	F SIX	MSFC	D NOHL	NAG 8-224	3722
29	NORTHWESTERN UNIV	P GOORJIAN	ARC	A TAFLOVE	NCA 2-727	3764
29	UNIV ILLINOIS-URBANA	C W PUTT	LERC	A SAMEH	NAG 3-1208	3899
29	IND U-PURDUE-INDAPLS	R A BLECH	LERC	A EGER	NAG 3-1246	3970
29	UNIV KENTUCKY	P W GOODE	LARC	R MEHROTRA	NAG 1-1276	4243
29	TULANE UNIV	A JOYCE	SSC	J B ELSTROTT	NGT 00-051-012	4302
29	MORGAN ST U	K H ABBOTT	LARC	A L TEATE	NAG 1-1492	4427
29	MORGAN ST U	J BENNETT	GSFC	G E PETERSON	NAG 5-1942	4428
29	MASS INST OF TECH	G J FOLLEN	LERC	R HAIMES	NCC 3-256	4951
29	MT HOLYOKE COLLEGE	B L WHITE	HQ	J MORROW	NAGW 1792	4986
29	U MINN-MNPLS-ST PAUL	C LI	JSC	T TEZDYUAR	NAG 9-449	5289
29	MISSISSIPPI STATE U	R A BLECH	LERC	J D TROTTER	NAG 3-1073	5345
29	MISSISSIPPI STATE U	B GUYNES	MSFC	S BALLINGTON	NAG 8-1012	5356
29	MISSISSIPPI STATE U	G A WILHOLD	MSFC	B K SONI	NAS 8-38857	5360
29	DARTMOUTH COLLEGE	P HUNTER	HQ	D KOTZ	NGT 00-051-160	5542
29	STEVENS INST OF TECH	B L WHITE	HQ	T G WILLIAMS	NAGW 1877	5715
29	NEW MEX ST U-LAS CR	J K ALEXANDER	HQ	J A BARNDEN	NAGW 1592	5750
29	UNIV NEW MEX	R J HAYDUK	HQ	G MAKI	NAGW 3293	5797
29	COLUMBIA UNIV	Y FREEMAN	JPL	G LOPEZ	NAGW 2668	5886
29	SYRACUSE UNIV	G B FINELLI	LARC	A L GOEL	NAG 1-1401	6198
29	CLEVELAND ST U	D P MORILAK	LERC	Y A LIU	NAG 3-1482	6491
29	CLEVELAND ST U	T K GLASGOW	LERC	G L KRAMERICH	NCC 3-41	6496
29	UNIV AKRON	J A TANNER	LARC	J PADOVAN	NAG 1-444	6644
29	UNIV AKRON	E J PETRIK	LERC	J DURKIN	NAG 3-923	6654
29	CARNEGIE-MELLON UNIV	P W GOODE	LARC	P K KHOSLA	NAG 1-1075	6869
29	PA ST U-UNIV. PARK	R L HARRIS	LARC	R KASTURI	NAG 1-1371	6947
29	UNIV TENN-KNOXVILLE	W W ST. CYR	SSC	R J SCHULZ	NAG13-20	7320
29	LAMAR UNIV	N H CHAFFEE	JSC	V D NGUYEN	NAG 9-695	7382
29	UNIV HOUSTON	J A VILLARREAL	JSC	J B WILLIS	NAG 9-562	7604
29	UNIV HOUSTON	C M HOSKINS	JSC	R A ALO	NAG 9-657	7613
29	U HOUSTON-CLEAR LAKE	M S MARGOLIS	HQ	G SAWYER	NGT 00-090-031	7676



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29	U TX-EL PASO	D R GLOVER	LERC	S D CABRERA	NAG 3-1380	7828
29	U TEXAS-SAN ANTONIO	J D ATKINSON	JSC	W ALTER	NAG 9-554	7848
29	C-WILLIAM AND MARY	D L PALUMBO	LARC	D M NICOL	NAG 1-1132	7929
29	NORFOLK ST U	J J LAMBIOTTE	LARC	S N SHAH	NAG 1-764	7983
29	NORFOLK ST U	J J LAMBIOTTE	LARC	S N SHAH	NAG 1-1536	7987
29	OLD DOMINION UNIV	K J HAYHURST	LARC	L WILSON	NAG 1-750	7997
29	OLD DOMINION UNIV	G B FINELLI	LARC	C M OVERSTREET	NAG 1-902	7999
29	OLD DOMINION UNIV	P W GOODE	LARC	R MIELKE	NAG 1-1223	8009
29	OLD DOMINION UNIV	J R SCOTT	LARC	A O DEMUREN	NAG 3-1329	8022
29	UNIV VIRGINIA	A L OVERMAN	LARC	J M ORTEGA	NAG 1-1112	8068
29	UNIV VIRGINIA	F C OWENS	HQ	J M ORTEGA	NGT 00-070-163	8153
29	UNIV VIRGINIA	F C OWENS	HQ	J M ORTEGA	NGT 00-070-164	8154
29	UNIV VIRGINIA	F C OWENS	HQ	J M ORTEGA	NGT 00-070-174	8157
29	UNIV VIRGINIA	F C OWENS	HQ	J M ORTEGA	NGT 00-070-229	8159
29	VA PLOY INST & ST U	E SCHWARTZ	HQ	J E LAPORTE	NGT 00-050-489	8238
31	ALA A&M UNIV	G FICHTL	MSFC	LIAU	NAG 8-201	1011
31	AUBURN UNIV	C R CHAPPELL	MSFC	J D PEREZ	NAG 8-147	1029
31	UNIV ALA-HUNTSVILLE	S A FIELDS	MSFC	C E KEFFER	NAG 8-834	1110
31	UNIV ALA-HUNTSVILLE	E J REICHMANN	MSFC	J B SMITH	NAG 8-888	1117
31	UNIV ALA-HUNTSVILLE	J LAUE	MSFC	N STON	NAS 8-37107	1147
31	UNIV ALA-HUNTSVILLE	G S WILSON	MSFC	R T MC NIDER	NAS 8-37139	1148
31	UNIV ALA-HUNTSVILLE	J ARNOLD	MSFC	R T MCNIDER	NAS 8-37585	1149
31	UNIV ALA-HUNTSVILLE	J E ARNOLD	MSFC	S Q KIDDER	NAS 8-38776	1155
31	UNIV ALA-HUNTSVILLE	F LESLIE	MSFC	S R CHRISTY	NAS 8-38789	1156
31	UNIV ALA-HUNTSVILLE	R J KOCZOR	MSFC	D J PERKEY	NCC 8-22	1162
31	UNIV ALASKA-FAIRBNKS	B J FLOWERS	WFF	S A KASOFU	NAG 5-699	1204
31	UNIV ALASKA-FAIRBNKS	R D MCPETERS	HQ	K STAMNES	NAGW 2165	1221
31	UNIV ALASKA-FAIRBNKS	J T SUTTERS	HQ	G E SHAW	NAGW 3728	1237
31	UNIV ALASKA-FAIRBNKS	W A BRENCHE	GSFC	C DEEHR	NAS 5-31637	1239
31	UNIV ALASKA-FAIRBNKS	T T LITTLE	MSFC	E M WESCOTT	NAS 8-36321	1241
31	ARIZONA ST U	H BLODGET	GSFC	P CHRISTENSER	NAS 5-31344	1305
31	UNIV OF ARIZONA	R D MCPETERS	GSFC	B M HERMAN	NAG 5-1496	1354
31	UNIV OF ARIZONA	W LAU	GSFC	R E DICKINSON	NAG 5-1642	1357
31	UNIV OF ARIZONA	D E FITZJARRALD	MSFC	R M SCHOTLAND	NAG 8-766	1373
31	UNIV OF ARIZONA	J W KAUFMAN	MSFC	J A ZEHNDER	NAG 8-889	1376
31	UNIV OF ARIZONA	J T BERGSTRALH	HQ	J S LEWIS	NAGW 340	1391
31	UNIV OF ARIZONA	H C BRINTON	HQ	W Z WISNIEWSKI	NAGW 716	1395
31	UNIV OF ARIZONA	R D MCPETERS	HQ	L L HOOD	NAGW 909	1398
31	UNIV OF ARIZONA	J T BERGSTRALH	HQ	J I LUNINE	NAGW 1039	1401
31	UNIV OF ARIZONA	M BALTUCK	HQ	C CHASE	NAGW 3166	1474
31	UNIV OF ARIZONA	J T BERGSTRALH	HQ	S W BOUGHER	NAGW 3432	1486
31	UNIV OF ARIZONA	W JAFFERIS	KSC	E P KRIDER	NAG10-92	1501
31	UNIV OF ARIZONA	G L MADDREA JR	LARC	B M HERMAN	NAS 1-18939	1502
31	UNIV OF ARIZONA	G L MADDREA	LARC	J A REAGAN	NAS 1-19953	1503
31	UNIV OF ARIZONA	J R RICHARDS	GSFC	D HUNTEN	NAS 5-30124	1505
31	UNIV OF ARIZONA	H OSEROFF	GSFC	P N SLATER	NAS 5-30781	1506
31	UNIV OF ARIZONA	H OSEROFF	GSFC	A HUETE	NAS 5-31364	1508
31	UNIV OF ARIZONA	L STUART	GSFC	P N SLATER	NAS 5-31717	1509
31	UNIV OF ARIZONA	G ASRAR	HQ	C L GROTEBECK	NGT 00-030-021	1520
31	UNIV OF ARIZONA	F C OWENS	HQ	H P LARSON	NGT 00-050-782	1542
31	UNIV OF ARIZONA	J T BERGSTRALH	HQ	D M HUNTEN	NSG-7558	1557
31	CALIF INST OF TECH	G BULLOCK	GSFC	E C STONE	NAG 5-727	1581
31	CALIF INST OF TECH	C H JACKMAN	HQ	Y L YUNG	NAGW 413	1615
31	CALIF INST OF TECH	J D RUMMEL	HQ	Y L YUNG	NAGW 1538	1620
31	CALIF INST OF TECH	M COMBERIATE	GSFC	H ZIRIN	NAS 5-27269	1672
31	CALIF INST OF TECH	G ASRAR	HQ	M F GERSTELL	NGT 00-030-135	1677
31	CAL POLY ST U-S LUIS	J W JENNER	ARC	W B PATTERSON	NCC 2-734	1723
31	SAN FRANCISCO ST U	S HIPSKIND	ARC	O GARCIA	NCA 2-764	1789
31	SAN JOSE ST U	R D MCPETERS	HQ	P HAMILL	NAGW 2112	1804
31	SAN JOSE ST U	J A KAYE	HQ	P HAMILL	NAGW 3525	1805

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31	SAN JOSE ST U	J B POLLACK	ARC	A F BRIDGER	NCA 2-740	1817
31	SAN JOSE ST U	B TOON	ARC	P HAMILL	NCA 2-741	1818
31	SAN JOSE ST U	S HIPSKIND	ARC	J GOODMAN	NCA 2-744	1819
31	SAN JOSE ST U	J B POLLACK	ARC	A F BRIDGER	NCA 2-817	1825
31	SAN JOSE ST U	J VALENTIN	ARC	J BECKER	NCA 2-834	1826
31	SAN JOSE ST U	S S WEGENER	ARC	J GOODMAN	NCC 2-168	1829
31	SAN JOSE ST U	K R CHAN	ARC	J GOODMAN	NCC 2-211	1831
31	SAN JOSE ST U	R E BACH	ARC	P F LESTER	NCC 2-315	1832
31	SAN JOSE ST U	R E YOUNG	ARC	P LESTER	NCC 2-471	1837
31	SAN JOSE ST U	O B TOON	ARC	P HAMILL	NCC 2-665	1841
31	SAN JOSE ST U	R B CHATFIELD	ARC	P HAMILL	NCC 2-756	1845
31	STANFORD UNIV	J BERGSTRAHL	HQ	G L TYLER	NAGW 3443	1919
31	STANFORD UNIV	P SELLERS	GSFC	H MOONEY	NAS 5-31726	1927
31	STANFORD UNIV	J H KERR	MSFC	P BANKS	NAS 8-36812	1929
31	STANFORD UNIV	R CHATFIELD	ARC	J OLIGER	NCA 2-810	1969
31	UNIV CALIF-BERKELEY	G BULLOCK	GSFC	F S MOZER	NAG 5-375	2053
31	UNIV CALIF-BERKELEY	G BULLOCK	GSFC	K A ANDERSON	NAG 5-376	2054
31	UNIV CALIF-BERKELEY	P R MAHAFFY	HQ	M L LAMPTON	NAGW 1879	2109
31	UNIV CALIF-BERKELEY	G LEVY	HQ	P RICHARDS	NAGW 2121	2114
31	UNIV CALIF-BERKELEY	L CHRISTENSEN	GSFC	F MOZER	NAS 5-30801	2153
31	UNIV CALIF-BERKELEY	T ONEIL	MSFC	S BOWYER	NAS 8-32577	2157
31	UNIV CALIF-BERKELEY	D E WICKLAND	HQ	J HARTE	NGT 00-030-212	2190
31	UNIV CALIF-DAVIS	J W KAUFMAN	MSFC	T NATHAN	NAG 8-811	2231
31	UNIV CALIF-DAVIS	J W KAUFMAN	MSFC	T R NATHAN	NAG 8-871	2232
31	UNIV CALIF-DAVIS	J T BERGSTRAHL	HQ	W M JACKSON	NAGW 903	2234
31	UNIV CALIF-DAVIS	P SELLERS	GSFC	S USTIN	NAS 5-31359	2241
31	UNIV CALIF-DAVIS	G ASRAR	HQ	E C CORDERO	NGT 00-030-153	2272
31	UNIV CALIF-DAVIS	G ASRAR	HQ	B C WEARE	NGT 00-030-200	2274
31	UNIV CALIF-IRVINE	J M HOELL	LARC	F S ROWLAND	NAG 1-783	2280
31	UNIV CALIF-IRVINE	W L GROSE	LARC	M J PRATHER	NAG 1-1515	2281
31	UNIV CALIF-IRVINE	J W DREWRY	LARC	F S ROWLAND	NAG 1-1533	2282
31	UNIV CALIF-IRVINE	E P CONDON	ARC	R J CICERONE	NAG 2-695	2285
31	UNIV CALIF-IRVINE	E CONDON	ARC	D TOOHEY	NAG 2-807	2286
31	UNIV CALIF-IRVINE	M J KURYLO	HQ	F S ROWLAND	NAGW 452	2295
31	UNIV CALIF-IRVINE	J A KAYE	HQ	M J PRATHER	NAGW 3163	2305
31	UNIV CALIF-IRVINE	E P CONDON	ARC	F S ROWLAND	NCC 2-750	2307
31	UNIV CALIF-IRVINE	G ASRAR	HQ	D W TOOHEY	NGT 00-030-161	2309
31	UNIV CALIF-IRVINE	G ASRAR	HQ	R J CICERONE	NGT 00-030-163	2310
31	UNIV CAL-LOS ANGELES	L R POOLE	LERC	B V SANKAR	NAG 1-1126	2318
31	UNIV CAL-LOS ANGELES	R F PUESCHEL	ARC	J K LEW	NAG 2-805	2329
31	UNIV CAL-LOS ANGELES	J PFAENDTNER	GSFC	M GHIL	NAG 5-713	2341
31	UNIV CAL-LOS ANGELES	M SUAREZ	GSFC	A ARAKAWA	NAG 5-789	2342
31	UNIV CAL-LOS ANGELES	J R FISCHER	GSFC	C R MECHOSO	NAG 5-2224	2362
31	UNIV CAL-LOS ANGELES	F SIX	MSFC	R L MCPHERRON	NAG 8-247	2364
31	UNIV CAL-LOS ANGELES	J T BERGSTRAHL	HQ	R M THORNE	NAGW 87	2370
31	UNIV CAL-LOS ANGELES	R D MCPETERS	HQ	C R MECHOSO	NAGW 1021	2373
31	UNIV CAL-LOS ANGELES	J T BERGSTRAHL	HQ	J G LUHMAN	NAGW 3426	2419
31	UNIV CAL-LOS ANGELES	J T BERGSTRAHL	HQ	C T RUSSELL	NAGW 3492	2424
31	UNIV CAL-LOS ANGELES	J T BERGSTRAHL	HQ	R J STRANGWAY	NAGW 3497	2425
31	UNIV CAL-LOS ANGELES	J T BERGSTRAHL	HQ	K K KHURANA	NAGW 3661	2429
31	UNIV CAL-LOS ANGELES	J A KAYE	HQ	R TURCO	NAGW 3671	2430
31	UNIV CAL-LOS ANGELES	G L MADDREA	LARC	R P TURCO	NAS 1-19956	2433
31	UNIV CAL-LOS ANGELES	D M BUTLER	HQ	A TABAZADEH	NGT 00-030-079	2447
31	UNIV CAL-SAN DIEGO	M SUAREZ	GSFC	R C SOMERVILLE	NAG 5-236	2487
31	UNIV CAL-SAN DIEGO	L J KALUZIENSKI	HQ	L E PETERSON	NAGW 1837	2528
31	UNIV CAL-SAN DIEGO	G S LAGERLOEF	HQ	T P BARNETT	NAGW 1952	2529
31	UNIV CAL-SAN DIEGO	M J KURYLO	HQ	R F WEISS	NAGW 2034	2533
31	UNIV CAL-SAN DIEGO	A C JANETOS	HQ	M WAHLEN	NAGW 2542	2539
31	UNIV CAL-SAN DIEGO	R J KEYNTON	LARC	V BAMANATHAN	NAS 1-19336	2567
31	UNIV CAL-SAN DIEGO	B TOON	ARC	V RAMANTHAN	NCA 2-791	2578

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31	UNIV CAL-SAN DIEGO	D L WESTPHAL	ARC	P J FLATAU	NCC 2-820	2584
31	U CAL-SANTA BARBARA	J C DODGE	HQ	C GAUTIER	NAGW 2460	2634
31	U CAL-SANTA BARBARA	R A SCHIFFER	HQ	C H GAUTIER	NAGW 2737	2637
31	U CAL-SANTA BARBARA	J C DODGE	HQ	C GAUTIER	NAGW 3180	2641
31	U CAL-SANTA BARBARA	H OSEROFF	GSFC	Z WAN	NAS 5-30947	2645
31	U CAL-SANTA BARBARA	T HAMILTON	GSFC	ROZIER	NAS 5-31343	2646
31	U CAL-SANTA BARBARA	T BRAKE	GSFC	J M MELACK	NAS 5-31713	2650
31	U CAL-SANTA BARBARA	G ASRAR	HQ	J A HICKE	NGT 00-030-138	2656
31	UNIV SOUTHERN CALIF	K FOX	HQ	D L JUDGE	NAGW 163	2714
31	UNIV SOUTHERN CALIF	H BRINTON	HQ	SHEMANSKY	NAGW 2830	2722
31	UNIV SOUTHERN CALIF	W J WAGNER	HQ	D L JUDGE	NAGW 3063	2726
31	COLORADO ST U	T OWENS	LARC	D A RANDALL	NAG 1-1137	2750
31	COLORADO ST U	T OWENS	LARC	S K COX	NAG 1-1146	2751
31	COLORADO ST U	B A WIELICKI	LARC	D A RANDALL	NAG 1-1266	2752
31	COLORADO ST U	W WISCOMBE	GSFC	D RANDALL	NAG 5-1058	2757
31	COLORADO ST U	R ADLER	GSFC	G L STEPHENS	NAG 5-1592	2758
31	COLORADO ST U	D STARR	GSFC	D RANDALL	NAG 5-1653	2759
31	COLORADO ST U	R E HOOD	MSFC	V N BRINGI	NAG 8-890	2762
31	COLORADO ST U	F R ROBERTSON	MSFC	G L STEPHENS	NAG 8-981	2763
31	COLORADO ST U	M J PRATHER	HQ	D E JOHNSON	NAGW 1829	2768
31	COLORADO ST U	J C DODGE	HQ	T H HAAR	NAGW 2700	2772
31	COLORADO ST U	G L MADDREA	LARC	D RANDALL	NAS 1-19951	2773
31	COLORADO ST U	P SELLERS	GSFC	D RANDALL	NAS 5-31730	2775
31	COLORADO ST U	D M BUTLER	HQ	T J GREENWALD	NGT 00-030-046	2778
31	COLORADO ST U	D M BUTLER	HQ	C W LANDSEA	NGT 00-030-064	2779
31	COLORADO ST U	G ASRAR	HQ	J A KNAFF	NGT 00-030-147	2783
31	UNIV COL-BOULDER	T OWENS	LARC	J LONDON	NAG 1-998	2791
31	UNIV COL-BOULDER	W L GROSE	LARC	M L SALBY	NAG 1-1355	2796
31	UNIV COL-BOULDER	J G WELLS	LARC	D C FRITTS	NAG 1-1440	2799
31	UNIV COL-BOULDER	E CONDON	ARC	M A TOLBERT	NAG 2-760	2807
31	UNIV COL-BOULDER	E CONDON	ARC	P J SHERIDAN	NAG 2-761	2808
31	UNIV COL-BOULDER	S H MELFI	GSFC	R L GROSSMAN	NAG 5-1115	2836
31	UNIV COL-BOULDER	J R HERMAN	GSFC	D A RUSCH	NAG 5-1475	2841
31	UNIV COL-BOULDER	J W KAUFMAN	MSFC	M L SALBY	NAG 8-787	2888
31	UNIV COL-BOULDER	S J GOODMAN	MSFC	G R SCHARFEN	NAG 8-882	2889
31	UNIV COL-BOULDER	K FOX	HQ	L ESPOSITO	NAGW 389	2894
31	UNIV COL-BOULDER	R D MCPETERS	HQ	M L SALBY	NAGW 772	2899
31	UNIV COL-BOULDER	R D MCPETERS	HQ	D W RUSCH	NAGW 1742	2912
31	UNIV COL-BOULDER	J C DODGE	HQ	W EMERY	NAGW 1960	2920
31	UNIV COL-BOULDER	R D MCPETERS	HQ	R T CLANCY	NAGW 2130	2925
31	UNIV COL-BOULDER	M J KURYLO	HQ	S R KAWA	NAGW 2586	2939
31	UNIV COL-BOULDER	J A KAYE	HQ	D W RUSCH	NAGW 2744	2947
31	UNIV COL-BOULDER	J C DODGE	HQ	M L SALBY	NAGW 2979	2958
31	UNIV COL-BOULDER	J C DODGE	HQ	M L SALBY	NAGW 3047	2966
31	UNIV COL-BOULDER	J T BERGSTRALH	HQ	D H GRINSPOON	NAGW 3482	2977
31	UNIV COL-BOULDER	J A KAYE	HQ	M L SALBY	NAGW 3485	2978
31	UNIV COL-BOULDER	J T BERGSTRALH	HQ	L W ESPOSITO	NAGW 3609	2984
31	UNIV COL-BOULDER	C REBER	GSFC	J LONDON	NAS 5-27263	2986
31	UNIV COL-BOULDER	N PETERSKI	GSFC	G ROTTMAN	NAS 5-27750	2987
31	UNIV COL-BOULDER	H BLODGET	GSFC	A GOETZ	NAS 5-31711	2992
31	UNIV COL-BOULDER	T BRAKE	GSFC	C WESSMAN	NAS 5-31715	2993
31	UNIV COL-BOULDER	B CAMPBELL	GSFC	D W RUSCH	NAS 5-32568	2996
31	UNIV COL-BOULDER	G HALL	MSFC	J E HART	NAS 8-31958	2998
31	UNIV COL-BOULDER	D JOHNSON	MSFC	D C FRITTS	NAS 8-39205	3000
31	UNIV COL-BOULDER	J B POLLACK	ARC	D H GRINSPOON	NCA 2-823	3004
31	UNIV COL-BOULDER	J M ZAWODNY	LARC	D W RUSCH	NCC 1-143	3005
31	UNIV COL-BOULDER	D M BUTLER	HQ	L CHEN	NGT 00-030-060	3011
31	UNIV COL-BOULDER	G ASRAR	HQ	T P HARTSELL	NGT 00-030-102	3015
31	UNIV COL-BOULDER	G ASRAR	HQ	M SALBY	NGT 00-030-187	3021
31	UNIV COL-BOULDER	G ASRAR	HQ	D J HOFMANN	NGT 00-030-205	3022

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31	UNIV COL-Boulder	G ASRAR	HQ	A R RAVISHANKARA	NGT 00-030-206	3023
31	UNIV COL-Boulder	F C OWENS	HQ	W BLUMEN	NGT 00-050-518	3034
31	UNIV COL-Boulder	J ALEXANDER	HQ	J T STOCKE	NGT 00-050-909	3049
31	UNIV DENVER	J G WELLS	LARC	D G MURCRAY	NAG 1-1336	3080
31	UNIV DENVER	S WEGENER	ARC	D G MURCRAY	NAG 2-351	3082
31	UNIV DENVER	S S WEGENER	ARC	J C WILSON	NAG 2-458	3083
31	UNIV DENVER	C P RINGLAND	LARC	A GOLDMAN	NCC 1-48	3089
31	UNIV DENVER	E P CONDON	ARC	J C WILSON	NCC 2-739	3091
31	UNIV DENVER	E P CONDON	ARC	J C WILSON	NCC 2-776	3092
31	UNIV DENVER	E CONDON	ARC	J C WILSON	NCC 2-782	3093
31	YALE UNIV	E J MAIER	GSFC	S SOFIA	NAG 5-736	3117
31	YALE UNIV	O W THIELE	GSFC	B SALTZMAN	NAG 5-2316	3122
31	YALE UNIV	J W KAUFMAN	MSFC	B SALTZMAN	NAG 8-785	3123
31	YALE UNIV	G ASRAR	HQ	E P SALATHE	NGT 00-030-010	3130
31	UNIV DELAWARE	J S THEON	HQ	J WU	NAGW 2981	3157
31	HOWARD UNIV	S R BREON	GSFC	A N THORPE	NAG 5-1017	3203
31	HOWARD UNIV	J T BERGSTRALH	HQ	H OKABE	NAGW 785	3207
31	UNIV DIST COLUMBIA	H L KYLE	GSFC	H OHURIA	NAG 5-1012	3235
31	UNIV DIST COLUMBIA	H L KYLE	GSFC	H L DHURIA	NAG 5-2345	3236
31	EMBRY-RIDDLE AERO U	F SIX	MSFC	L ERICKSON	NAG 8-273	3243
31	EMBRY-RIDDLE AERO U	F SIX	MSFC	L ERICKSON	NCC 8-26	3245
31	FLORIDA ATLANTIC U	J J MARGITAN	HQ	C R BURNETT	NAGW 989	3272
31	FLORIDA ST U	J FISHMAN	LARC	T N KRISHNAMURTI	NAG 1-1312	3294
31	FLORIDA ST U	M HELFAND	GSFC	R L PFEFFER	NAG 5-815	3300
31	FLORIDA ST U	D SHORT	GSFC	S E NICHOLSON	NAG 5-1587	3301
31	FLORIDA ST U	W LAU	GSFC	T N KRISHNAMURTI	NAG 5-1595	3302
31	FLORIDA ST U	A NEGRI	GSFC	E A SMITH	NAG 5-1602	3303
31	FLORIDA ST U	J R BATES	GSFC	I M NAVON	NAG 5-1660	3304
31	FLORIDA ST U	G M HEYMSFIELD	GSFC	P S RAY	NAG 5-1869	3305
31	FLORIDA ST U	H J CHRISTAIN	MSFC	H FUELBERG	NAG 8-653	3307
31	FLORIDA ST U	J KAUFMAN	MSFC	A BARCILON	NAG 8-760	3308
31	FLORIDA ST U	G J JEDLOVER	MSFC	H E FUELBERG	NAG 8-911	3309
31	FLORIDA ST U	D FITZJARRALD	MSFC	T N KRISHNAMURTI	NAG 8-914	3310
31	FLORIDA ST U	S J GOODMAN	MSFC	E A SMITH	NAG 8-916	3311
31	FLORIDA ST U	G J JEDLOVEC	MSFC	H E FUELBERG	NAG 8-942	3312
31	FLORIDA ST U	J C DODGE	HQ	E A SMITH	NAGW 991	3314
31	FLORIDA ST U	D ADAMEC	HQ	W K DEWAR	NAGW 3087	3319
31	FLORIDA ST U	R E MURPHY	HQ	S E NICHOLSON	NAGW 3101	3320
31	FLORIDA ST U	R E MURPHY	HQ	E A SMITH	NAGW 3109	3321
31	FLORIDA ST U	J R NICHOLSON	KSC	H E FUELBERG	NAG10-47	3324
31	FLORIDA ST U	G ASRAR	HQ	H E FUELBERG	NGT 00-030-214	3328
31	FLORIDA ST U	F C OWENS	HQ	H E FUELBERG	NGT 00-050-524	3332
31	FLORIDA ST U	B MILLER	KSC	H E FUELBERG	NGT 00-050-983	3334
31	FLORIDA ST U	F C OWENS	HQ	S E NICHOLSON	NGT 00-070-062	3335
31	FLORIDA ST U	G SOFFEN	GSFC	S NICHOLSON	NGT 00-070-273	3338
31	UNIV FLORIDA	R E YOUNG	ARC	M A UMAN	NAG 2-667	3375
31	UNIV FLORIDA	J C DODGE	HQ	H W HISER	NAGW 3032	3396
31	UNIV MIAMI	J W DREWRY	LARC	J M PROSPERO	NAG 1-1229	3420
31	UNIV MIAMI	H OSEROFF	GSFC	R EVANS	NAS 5-31362	3439
31	UNIV MIAMI	H OSEROFF	GSFC	H GORDON	NAS 5-31363	3440
31	UNIV MIAMI	C MCLAIN	GSFC	H GORDAN	NAS 5-31734	3441
31	UNIV SOUTH FLORIDA	N P BARNES	LARC	D K KILLINGER	NAG 1-1104	3446
31	UNIV SOUTH FLORIDA	H OSEROFF	GSFC	K L CARDER	NAS 5-30779	3461
31	UNIV SOUTH FLORIDA	H OSEROFF	GSFC	K R CARDER	NAS 5-31716	3462
31	GEORGIA INST OF TECH	E V BROWELL	LARC	J D BRADSHAW	NAG 1-1213	3485
31	GEORGIA INST OF TECH	E V BROWELL	LARC	J BRADSHAW	NAG 1-1415	3491
31	GEORGIA INST OF TECH	J FISHMAN	LARC	D D DAVIS	NAG 1-1438	3493
31	GEORGIA INST OF TECH	R F ADLER	GSFC	A J GASIEWSKI	NAG 5-1490	3510
31	GEORGIA INST OF TECH	J ROTHERMEL	MSFC	E M PATTERSON	NAG 8-847	3517
31	GEORGIA INST OF TECH	B F JAMES	MSFC	C G JUSTUS	NAG 8-877	3519

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31	GEORGIA INST OF TECH	J T BERGSTALH	HQ	P G STEFFES	NAGW 533	3522
31	GEORGIA INST OF TECH	M J KURYLO	HQ	P H WINE	NAGW 1001	3523
31	GEORGIA INST OF TECH	G L MADDREA	LARC	D M CUNNOLD	NAS 1-18487	3528
31	GEORGIA INST OF TECH	G L MADDREA	LARC	D M CUNNOLD	NAS 1-18938	3529
31	GEORGIA INST OF TECH	G L MADDREA	LARC	D M CUNNOLD	NAS 1-19954	3531
31	GEORGIA INST OF TECH	C REBER	GSFC	D CUNNOLD	NAS 5-27264	3532
31	GEORGIA INST OF TECH	J M HOELL	LARC	D D DAVIS	NCC 1-148	3539
31	GEORGIA INST OF TECH	D M BUTLER	HQ	C J SHACKELFORD	NGT 00-030-050	3546
31	GEORGIA INST OF TECH	F SIX	MSFC	R G ROPER	NGT 00-050-864	3554
31	UNIV GEORGIA	F G HALL	GSFC	E KANEMASU	NAG 5-1192	3601
31	UNIV GEORGIA	S GOODMAN	MSFC	K T KANEMASU	NAG 8-910	3607
31	UNIV HAWAII-MANOA	L S WALTER	GSFC	S SELF	NAG 5-1839	3625
31	UNIV HAWAII-MANOA	J ROTHERMEL	MSFC	A D CLARKE	NAG 8-848	3633
31	UNIV HAWAII-MANOA	M BALTUCK	HQ	S SELF	NAGW 3721	3691
31	UNIV HAWAII-MANOA	J R RICHARDS	GSFC	T B OWEN	NAS 5-30951	3695
31	UNIV IDAHO	J B POLLACK	ARC	D H ATKINSON	NCA 2-705	3716
31	UNIV IDAHO	J B POLLACK	ARC	D H ATKINSON	NCA 2-795	3718
31	CHICAGO ST U	G ASRAR	HQ	B J SODEN	NGT 00-030-011	3721
31	UNIV CHICAGO	E HILSENATH	GSFC	J E FREDERICK	NAG 5-873	3787
31	UNIV CHICAGO	H M HELFAND	GSFC	L J DONNER	NAG 5-1056	3788
31	UNIV CHICAGO	A L KRUEGER	GSFC	J E FREDERICK	NAG 5-1986	3798
31	UNIV CHICAGO	S J GOODMAN	MSFC	T J FUJITA	NAG 8-886	3804
31	UNIV CHICAGO	H C BRINTON	HQ	A J TUZZOLINO	NAGW 3078	3835
31	UNIV CHICAGO	J A KAYE	HQ	G C TIAO	NAGW 3114	3836
31	UNIV CHICAGO	J BOYCE	HQ	E OLSEN	NAGW 3569	3844
31	UNIV CHICAGO	E M SULLIVAN	LARC	J E FREDERICK	NAS 1-18239	3846
31	UNIV CHICAGO	B R BARKSTROM	LARC	V RAMANATHAN	NAS 1-18385	3847
31	UNIV ILLINOIS URBANA	J G WELLS	LARC	C S GARDNER	NAG 1-1344	3881
31	UNIV ILLINOIS URBANA	L WALTER	GSFC	P HANDLER	NAG 5-1896	3911
31	UNIV ILLINOIS URBANA	J KAYE	HQ	J WALSH	NAGW 992	3921
31	UNIV ILLINOIS URBANA	R D MCPETERS	HQ	W A ROBINSON	NAGW 1729	3926
31	UNIV ILLINOIS URBANA	G L MADDREA	LARC	C S GARDNER	NAS 1-19950	3933
31	UNIV ILLINOIS URBANA	G L MADDREA	LARC	N SONG	NAS 1-19957	3934
31	UNIV ILLINOIS URBANA	S E KOCH	GSFC	H T OCHS	NCC 5-47	3947
31	PURDUE UNIV	R S FRASER	GSFC	HARSHVARDHAN	NAG 5-1125	4018
31	PURDUE UNIV	F ROBINSON	MSFC	P J SMITH	NAG 8-764	4021
31	PURDUE UNIV	J W KAUFMAN	MSFC	D G VINCENT	NAG 8-836	4022
31	PURDUE UNIV	J W KAUFMAN	MSFC	P J SMITH	NAG 8-915	4023
31	PURDUE UNIV	W M LAPENTA	MSFC	G W PETTY	NAG 8-918	4024
31	PURDUE UNIV	J W KAUFMAN	MSFC	D G VINCENT	NAG 8-1031	4026
31	PURDUE UNIV	J C DODGE	HQ	G W PETTY	NAGW 2984	4033
31	PURDUE UNIV	J C DODGE	HQ	HARSHVARDHAN	NAGW 3150	4035
31	PURDUE UNIV	H W BLODGET	GSFC	D A LANDGREBE	NAS 5-31712	4043
31	PURDUE UNIV	G LESANE	HQ	G W PETTY	NGT 00-051-077	4061
31	IOWA ST U	J W PFAENDTNER	GSFC	T C CHEN	NAG 5-355	4106
31	IOWA ST U	M L WU	GSFC	J L STANFORD	NAG 5-1060	4108
31	IOWA ST U	A J KRUEGER	GSFC	J L STANFORD	NAG 5-1519	4109
31	IOWA ST U	J A KAYE	HQ	J L STANFORD	NAGW 2582	4117
31	IOWA ST U	J C DODGE	HQ	W J GUTOWSKI	NAGW 2993	4119
31	IOWA ST U	J ALEXANDER	HQ	T C CHEN	NGT 00-050-757	4130
31	UNIV IOWA	O W THIELE	GSFC	W F KRAJEWSKI	NAG 5-2084	4152
31	UNIV IOWA	M M MELLOTT	HQ	J A VAN ALLEN	NAGW 1739	4162
31	UNIV IOWA	J A KAYE	HQ	G R CARMICHAEL	NAGW 2428	4166
31	UNIV IOWA	J L CHRISTENSEN	GSFC	D GURNETT	NAS 5-30730	4177
31	UNIV IOWA	J GREEN	GSFC		NAS 5-30941	4178
31	UNIV IOWA	G ASRAR	HQ	Y SUNWOO	NGT 00-030-030	4180
31	UNIV IOWA	G ASRAR	HQ	W F KRAJEWSKI	NGT 00-030-192	4182
31	UNIV IOWA	G ASRAR	HQ	T F SMITH	NGT 00-030-218	4183
31	UNIV NORTHERN IOWA	F SIX	MSFC	T A HOCKEY	NAG 8-265	4186
31	UNIV KANSAS	G M HEYMSFIELD	GSFC		NAG 5-1811	4200

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31	UNIV KANSAS	D FITZJARRALD	MSFC	R K MOORE	NAG 8-893	4202
31	UNIV KANSAS	D E FITZJARRALD	MSFC	R K MOORE	NAG 8-958	4203
31	UNIV KANSAS	G ASRAR	HQ	S P GOGINENI	NGT 00-030-202	4225
31	UNIV KENTUCKY	J A KAYE	HQ	R D SAYLOR	NAGW 2992	4245
31	UNIV SOUTHWESTERN LA	JOYCE	SSC	T WILLIAMS	NAG13-24	4308
31	JOHNS HOPKINS UNIV	A ARKING	GSFC	D F STROBEL	NAG 5-1476	4334
31	JOHNS HOPKINS UNIV	K M LAU	GSFC	A ARKING	NAG 5-2039	4357
31	JOHNS HOPKINS UNIV	J T BERGSTRALH	HQ	D F STROBEL	NAGW 648	4372
31	JOHNS HOPKINS UNIV	G C CLAYTON	HQ	R C HENRY	NAGW 1890	4376
31	JOHNS HOPKINS UNIV	R D MCPETERS	HQ	D F STROBEL	NAGW 2148	4379
31	JOHNS HOPKINS UNIV	W C PATZERT	HQ	R C BEAL	NAGW 2719	4390
31	JOHNS HOPKINS UNIV	H BLODGET	GSFC	J SALISBURY	NAS 5-31373	4417
31	U MARYLAND-BALTIMORE	J SUSSKIND	GSFC	L L STROW	NAG 5-1593	4437
31	U MARYLAND-BALTIMORE	M J KURYLO	HQ	L L STROW	NAGW 1020	4438
31	UNIV MD-COLLEGE PARK	J SUSSKIND	GSFC	O E THOMPSON	NAG 5-730	4471
31	UNIV MD-COLLEGE PARK	W R HOEGY	GSFC	N SPENCER	NAG 5-822	4472
31	UNIV MD-COLLEGE PARK	J R BATES	GSFC	F E BAER	NAG 5-867	4473
31	UNIV MD-COLLEGE PARK	M D CHOU	GSFC	R T PINKER	NAG 5-914	4475
31	UNIV MD-COLLEGE PARK	J R HERMAN	GSFC	R D HUDSON	NAG 5-1696	4494
31	UNIV MD-COLLEGE PARK	G K SCHWEMMER	GSFC	T D WILKERSON	NAG 5-1782	4496
31	UNIV MD-COLLEGE PARK	L S WALTER	GSFC	A ROBUCK	NAG 5-1835	4500
31	UNIV MD-COLLEGE PARK	R K KAKAR	HQ	J SHUKLA	NAGW 558	4528
31	UNIV MD-COLLEGE PARK	R K KAKAR	HQ	J SHUKLA	NAGW 1166	4531
31	UNIV MD-COLLEGE PARK	W HUNTRESS JR	HQ	R G ELLINGSON	NAGW 1471	4534
31	UNIV MD-COLLEGE PARK	M MELLOTT	HQ	J F DRAKE	NAGW 1661	4537
31	UNIV MD-COLLEGE PARK	P R MAHAFFY	HQ	D C HAMILTON	NAGW 1856	4540
31	UNIV MD-COLLEGE PARK	K H BERGMAN	HQ	D STRAUS	NAGW 2664	4555
31	UNIV MD-COLLEGE PARK	R A SCHIFFER	HQ	J SHUKLA	NAGW 2745	4559
31	UNIV MD-COLLEGE PARK	M BALTUCK	HQ	G BLUTH	NAGW 3729	4583
31	UNIV MD-COLLEGE PARK	E R KREINS	GSFC	F BAER	NAS 5-29163	4585
31	UNIV MD-COLLEGE PARK	T VON ROSENVINGE	GSFC	G M MASON	NAS 5-30927	4588
31	UNIV MD-COLLEGE PARK	L CHRISTENSEN	GSFC	F IPAVICH	NAS 5-31166	4589
31	UNIV MD-COLLEGE PARK	P SELLERS	GSFC	C JUSTICE	NAS 5-31732	4592
31	UNIV MD-COLLEGE PARK	E V BROWELL	LARC	T D WILKERSON	NCC 1-25	4598
31	UNIV MD-COLLEGE PARK	E M MIDDLETON	GSFC	S N GOWARD	NCC 5-26	4602
31	UNIV MD-COLLEGE PARK	E R KREINS	GSFC	F BAER	NCC 5-39	4604
31	BOSTON UNIV	H OSEROFF	GSFC	A H STRAHLER	NAS 5-30917	4661
31	BOSTON UNIV	H OSEROFF	GSFC	W STRAHLER	NAS 5-31369	4662
31	BOSTON UNIV	D L REASONER	MSFC	M MENDILLO	NAS 8-36324	4663
31	HARVARD UNIV	L R POOLE	LARC	J G ANDERSON	NAG 1-1305	4673
31	HARVARD UNIV	J M HOELL	LARC	D J JACOB	NAG 1-1421	4675
31	HARVARD UNIV	E P CONDON	ARC	S C WOFSY	NAG 2-705	4678
31	HARVARD UNIV	E P CONDON	ARC	S C WOFSY	NAG 2-731	4679
31	HARVARD UNIV	P SELLERS	GSFC	S WOFSY	NAG 5-1794	4688
31	HARVARD UNIV	R D MCPETERS	HQ	S C WOFSY	NAGW 1230	4699
31	HARVARD UNIV	M J KURYLO	HQ	J G ANDERSON	NAGW 1464	4700
31	HARVARD UNIV	G C CLAYTON	HQ	W H PARKINSON	NAGW 1596	4701
31	HARVARD UNIV	G C CLAYTON	HQ	R KIRSHNER	NAGW 1789	4704
31	HARVARD UNIV	J A KAYE	HQ	M B MCELROY	NAGW 2632	4708
31	HARVARD UNIV	G L MADDREA	LARC	S C WOFSY	NAS 1-19955	4719
31	HARVARD UNIV	E P CONDON	ARC	J G ANDERSON	NCC 2-693	4722
31	HARVARD UNIV	E P CONDON	ARC	S C WOFSY	NCC 2-694	4723
31	HARVARD UNIV	E CONDON	ARC	S C WOFSY	NCC 2-786	4724
31	HARVARD UNIV	E CONDON	ARC	J G ANDERSON	NCC 2-790	4725
31	HARVARD UNIV	G ASRAR	HQ	T M DELSOLE	NGT 00-030-027	4727
31	HARVARD UNIV	G ASRAR	HQ	S A LLOYD	NGT 00-030-031	4728
31	HARVARD UNIV	D M BUTLER	HQ	L M AVALLONE	NGT 00-030-080	4731
31	HARVARD UNIV	D M BUTLER	HQ	A E DESSLER	NGT 00-030-082	4732
31	HARVARD UNIV	G ASRAR	HQ	D JACOB	NGT 00-030-172	4733
31	HARVARD UNIV	G ASRAR	HQ	D JACOB	NGT 00-030-184	4735

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31	MASS INST OF TECH	J M HOELL	LARC	R E NEWELL	NAG 1-1252	4761
31	MASS INST OF TECH	R E TURNER	LARC	R A PLUMB	NAG 1-1360	4763
31	MASS INST OF TECH	E CONDON	ARC	M J MOLINA	NAG 2-632	4771
31	MASS INST OF TECH	J C SHIUE	GSFC	D H STAELIN	NAG 5-10	4801
31	MASS INST OF TECH	A D GENIO	GSFC	P S EAGLESON	NAG 5-743	4803
31	MASS INST OF TECH	R ATLAS	GSFC	P H STONE	NAG 5-927	4804
31	MASS INST OF TECH	D RIND	GSFC	P H STONE	NAG 5-1328	4807
31	MASS INST OF TECH	D SHORT	GSFC	R L BRAS	NAG 5-1615	4812
31	MASS INST OF TECH	B G BILLS	GSFC	P MOLNAR	NAG 5-1947	4826
31	MASS INST OF TECH	J V VARGAS	MSFC	G W CLARK	NAG 8-185	4836
31	MASS INST OF TECH	H J CHRISTIAN	MSFC	E R WILLIAMS	NAG 8-935	4846
31	MASS INST OF TECH	J A KAYE	HQ	R G PRINN	NAGW 474	4863
31	MASS INST OF TECH	R K KAKAR	HQ	R S LINDZEN	NAGW 525	4864
31	MASS INST OF TECH	R D MCPETERS	HQ	R G PRINN	NAGW 732	4866
31	MASS INST OF TECH	M J KURYLO	HQ	J I STEINFELD	NAGW 1667	4878
31	MASS INST OF TECH	R D MCPETERS	HQ	R A PLUMB	NAGW 1727	4880
31	MASS INST OF TECH	M J KURYLO	HQ	M J MOLINA	NAGW 2190	4892
31	MASS INST OF TECH	D ADAMEO	HQ	P MALANOTTE-RIZZO	NAGW 2711	4902
31	MASS INST OF TECH	R E MURPHY	HQ	D ENTEKHABI	NAGW 3100	4912
31	MASS INST OF TECH	G SOFFEN	GSFC	D STAELIN	NAS 5-30791	4928
31	MASS INST OF TECH	H BURRITT	GSFC	B HORN	NAS 5-31352	4929
31	MASS INST OF TECH	D DUFFY	GSFC	P H STONE	NGR22-9727	4955
31	MASS INST OF TECH	G ASRAR	HQ	R ZHANG	NGT 00-030-036	4957
31	UNIV LOWELL	J G WELLS	LARC	R R GAMACHE	NAG 1-1261	4995
31	UNIV LOWELL	J B POLLACK	ARC	R R GAMACHE	NCA 2-698	4996
31	UNIV MASS-AMHERST	B J CONNOR	LARC	A D PARRISH	NAG 1-1022	4997
31	UNIV MASS-AMHERST	R H THOMAS	HQ	C T SWIFT	NAGW 3685	5022
31	MICHIGAN TECH U	A J KRUEGER	GSFC	W I ROSE	NAG 5-1873	5089
31	MICHIGAN TECH U	A J KRUEGER	GSFC	W I ROSE	NAG 5-2324	5090
31	U MICHIGAN-ANN ARBOR	J G WELLS	LARC	T L KILLEEN	NAG 1-1315	5107
31	U MICHIGAN-ANN ARBOR	J M HOELL	LARC	M A CARROLL	NAG 1-1465	5112
31	U MICHIGAN-ANN ARBOR	G L GREGORY	LARC	M A CARROLL	NAG 1-1544	5116
31	U MICHIGAN-ANN ARBOR	R J KECZOR	MSFC	P B HAYS	NAG 8-919	5155
31	U MICHIGAN-ANN ARBOR	H C BRINTON	HQ	A F NAGY	NAGW 631	5160
31	U MICHIGAN-ANN ARBOR	J T BERGSTRALH	HQ	T SHYN	NAGW 938	5161
31	U MICHIGAN-ANN ARBOR	R D MCPETERS	HQ	A K SMITH	NAGW 1744	5169
31	U MICHIGAN-ANN ARBOR	G LEVY	HQ	D J HEYGI	NAGW 2124	5179
31	U MICHIGAN-ANN ARBOR	G LEVY	HQ	D J HEYGI	NAGW 2125	5180
31	U MICHIGAN-ANN ARBOR	M J KURYLO	HQ	J R BARKER	NAGW 2398	5188
31	U MICHIGAN-ANN ARBOR	W L QUAIDE	HQ	A NAGY	NAGW 2533	5190
31	U MICHIGAN-ANN ARBOR	J T BERGSTRALH	HQ	L BRACE	NAGW 3579	5198
31	U MICHIGAN-ANN ARBOR	E M SULLIVAN	LARC	S R DRAYSON	NAS 1-18290	5201
31	U MICHIGAN-ANN ARBOR	G HONEYCUTT	GSFC	P HAYS	NAS 5-27751	5205
31	U MICHIGAN-ANN ARBOR	S WAY	GSFC	G CARIGNAN	NAS 5-29344	5206
31	U MICHIGAN-ANN ARBOR	B NIEMANN	GSFC	S K ATREYA	NAS 5-30119	5207
31	U MICHIGAN-ANN ARBOR	J R RICHARDS	GSFC	T M DONAHUE	NAS 5-30120	5208
31	U MICHIGAN-ANN ARBOR	R L FROST	GSFC	G CARIGNAN	NAS 5-30943	5209
31	U MICHIGAN-ANN ARBOR	R L FROST	GSFC	G CARIGNAN	NAS 5-30955	5210
31	U MICHIGAN-ANN ARBOR	M F MALONE	MSFC	E G FONTHEIM	NAS 8-37108	5212
31	U MICHIGAN-ANN ARBOR	F C OWENS	HQ	T I GOMBOSI	NGT 00-070-096	5248
31	U MINN-MNPLS-ST PAUL	R F CAHALAN	GSFC	E FOUFOULA-GEORGIU	NAG 5-2108	5284
31	U MINN-MNPLS-ST PAUL	M J KURYLO	HQ	R W CARR	NAGW 800	5291
31	U MINN-MNPLS-ST PAUL	J A KAYE	HQ	P M MCMURRY	NAGW 3751	5309
31	U MINN-MNPLS-ST PAUL	D M BUTLER	HQ	J J MARTI	NGT 00-030-052	5317
31	U MINN-MNPLS-ST PAUL	A G BESWICK	LARC	K MAUERSBERGER	NSG-1431	5330
31	UNIV MISSOURI-ROLLA	E CONDON	ARC	P D WHITEFIELD	NAG 2-720	5392
31	WASHINGTON UNIV	I D BROWNE	JSC	C M HOHENBERG	NAG 9-7	5406
31	WASHINGTON UNIV	P D HAMMER	ARC	H SMITH	NCA 2-592	5446
31	UNIV MONTANA	G ASRAR	HQ	G N RICHARDS	NGT 00-030-169	5474
31	UNIV NEVADA-DRI	D S MCDUGAL	LARC	J HALLETT	NAG 1-1546	5502

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31	UNIV NEVADA-DRI	R F PUESCHEL	ARC	J HALLETT	NAG 2-663	5503
31	UNIV NEVADA-DRI	J T SUTTLES	HQ	J G HUDSON	NAGW 3753	5505
31	UNIV NEVADA-RENO	D S MCDUGAL	LARC	J G HUDSON	NAG 1-1113	5508
31	UNIV NEVADA-RENO	M J KURYLO	HQ	J HALLETT	NAGW 2572	5513
31	DARTMOUTH COLLEGE	J A KAYE	HQ	C G FESEN	NAGW 2563	5531
31	UNIV NEW HAMP-DURHAM	J LUVALL	MSFC	B ROCK	NAG 8-853	5563
31	UNIV NEW HAMP-DURHAM	M M AVERNER	HQ	M E HINES	NAGW 512	5564
31	UNIV NEW HAMP-DURHAM	M J KURYLO	HQ	R C HARISS	NAGW 1826	5572
31	UNIV NEW HAMP-DURHAM	M E MAIDEN	HQ	B M MOORE	NAGW 3185	5589
31	UNIV NEW HAMP-DURHAM	G W SACHSE	LARC	R C HARRISS	NCC 1-184	5603
31	UNIV NEW HAMP-DURHAM	S G TILFORD	HQ	E MOORE	NGT 00-080-009	5613
31	RUTGERS ST U-PISCWTY	R H WARING	HQ	R AVISSAR	NAGW 2658	5710
31	NEW MEX INST MINING	J M ZAWODNY	LARC	R J THOMAS	NCC 1-142	5729
31	NEW MEX ST U-LAS CR	M E NEIN	MSFC	J D BURNS	NAG 8-986	5743
31	NEW MEX ST U-LAS CR	J B POLLACK	ARC	M S MARLEY	NCA 2-793	5765
31	COLUMBIA UNIV	O W THIELE	GSFC	K TAKANO	NAG 5-1960	5852
31	COLUMBIA UNIV	M J KURYLO	HQ	W S BROECKER	NAGW 895	5866
31	COLUMBIA UNIV	M J KURYLO	HQ	W S BROECKER	NAGW 2111	5878
31	COLUMBIA UNIV	L D TRAVIS	GSFC	W S BROECKER	NCC 5-29	5897
31	COLUMBIA UNIV	R STOTHERS	GSFC	C K CHU	NCC 5-34	5898
31	COLUMBIA UNIV	L TRAVIS	GSFC	R L LEVENSON	NCC 5-36	5899
31	COLUMBIA UNIV	D PETEET	GSFC	L POLVANI	NCC 5-44	5901
31	COLUMBIA UNIV	V CANUTO	GSFC	R A LEVENSON	NCC 5-45	5902
31	CORNELL UNIV	B J CONRATH	GSFC	P J GIERASCH	NAG 5-813	5951
31	CORNELL UNIV	F G HALL	GSFC	W BRUTSAERT	NAG 5-1378	5953
31	CORNELL UNIV	J F STONE	MSFC	M KELLEY	NAS 8-36687	6004
31	CORNELL UNIV	G LESANE	HQ	K COOK	NGT 00-051-147	6025
31	RENSSELAER POLY INST	D FRAZIER	MSFC	M E GLIKSMAN	NAG 8-864	6069
31	ROCKEFELLER UNIV	P K BHARTIA	GSFC	L SIROVICH	NAG 5-2336	6101
31	ST U OF NY-ALBANY	J A RITTER	LARC	D R FITZJARRALD	NAG 1-1092	6102
31	ST U OF NY-ALBANY	M D CHOU	GSFC	W C WANG	NAG 5-1397	6104
31	ST U OF NY-ALBANY	R M ATLAS	GSFC	D KEYSER	NAG 5-1501	6105
31	ST U OF NY-ALBANY	S E KOCH	GSFC	D J KNIGHT	NAG 5-2205	6106
31	ST U OF NY-ALBANY	D HAVRISIK	MSFC	F WALTER	NAG 8-844	6108
31	ST U OF NY-ALBANY	J A KAYE	HQ	W C WANG	NAGW 3155	6113
31	ST U OF NY-ALBANY	J L COOPER	LARC	R D CESS	NAS 1-18155	6116
31	ST U OF NY-ALBANY	G L MADDREA	LARC	V MOHNEN	NAS 1-18942	6117
31	ST U OF NY-ALBANY	G SOFFEN	GSFC	J E MOLINARI	NAS 5-30775	6118
31	ST U OF NY-ALBANY	R F PUESCHEL	ARC	M A KRITZ	NCA 2-542	6121
31	ST U OF NY-ALBANY	J A RITTER	LARC	D R FITZJARRALD	NCC 1-135	6122
31	ST U OF NY-ALBANY	S WEGENER	ARC	M A KRITZ	NCC 2-502	6124
31	ST U NY-STONY BROOK	B A WIELICKI	LARC	R D CESS	NAG 1-1264	6152
31	ST U NY-STONY BROOK	J G WELLS	LARC	R DE ZAFRA	NAG 1-1354	6153
31	ST U NY-STONY BROOK	W TAO	GSFC	M A GELLER	NAG 5-1699	6159
31	ST U NY-STONY BROOK	M J KURYLO	HQ	P M SOLOMON	NAGW 1560	6169
31	ST U NY-STONY BROOK	M J KURYLO	HQ	R DE ZAFRA	NAGW 2182	6171
31	ST U NY-STONY BROOK	J C DODGE	HQ	R D CESS	NAGW 3517	6180
31	ST U NY-STONY BROOK	C A REBER	GSFC	M A GELLER	NAS 5-31247	6183
31	ST U NY C-PURCHASE	M HELFAND	GSFC	J TENENBAUM	NSG-5077	6190
31	SYRACUSE UNIV	R B ROOD	GSFC	G C FOX	NAG 5-2280	6204
31	DUKE UNIV	J M RUSSELL	LARC	F DELUCIA	NAS 1-18997	6238
31	DUKE UNIV	G ASRAR	HQ	R OREN	NGT 00-030-211	6244
31	NC ST U.-RALEIGH	S E KOCH	GSFC	Y L LIN	NAG 5-1790	6292
31	NC ST U.-RALEIGH	J A KAYE	HQ	P BLOOMFIELD	NAGW 3120	6302
31	UNIV NORTH DAKOTA	D S MCDUGAL	LARC	M R POELLOT	NAG 1-1351	6357
31	OHIO ST U	B H PUTNEY	GSFC	C C GOAD	NAG 5-2041	6592
31	OHIO ST U	J G WELLS	LARC	F C DELUCIA	NAS 1-19404	6615
31	OHIO ST U	T W HAMILTON	GSFC	R H THOMAS	NAS 5-30946	6617
31	UNIV DAYTON	F J SCHMIDLIN	GSFC	J K LUERS	NAS 5-31661	6731
31	UNIV OKLAHOMA-NORMAN	F G HALL	GSFC	T GAL-CHEN	NAG 5-1379	6791



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31	UNIV OKLAHOMA-NORMAN	J SIMPSON	GSFC	Y L KOGAN	NAG 5-1528	6792
31	UNIV OKLAHOMA-NORMAN	S J GOODMAN	MSFC	C E DUCHON	NAG 8-922	6794
31	OREGON ST U	T OWENS	LARC	J A COAKLEY	NAG 1-1234	6806
31	OREGON ST U	J W YOUNGBLOOD	LARC	J A COAKLEY	NAG 1-1263	6807
31	OREGON ST U	J E COOPER	LARC	J A COAKLEY	NAS 1-18992	6838
31	OREGON ST U	G L MADDREA	LARC	J A COAKLEY	NAS 1-19952	6839
31	OREGON ST U	R M HABERLE	ARC	J R BARNES	NCC 2-661	6842
31	UNIV OREGON-EUGENE	I G NOLT	LARC	K J PARK	NAG 1-963	6859
31	UNIV OREGON-EUGENE	R E YOUNG	ARC	D B KIRK	NCC 2-690	6866
31	DREXEL UNIV	R J BENDURA	LARC	A R BANDY	NAG 1-1224	6904
31	DREXEL UNIV	F ROBERTSON	MSFC	D J PERKEY	NAG 8-714	6910
31	DREXEL UNIV	F R ROBERTSON	MSFC	D J DERKEY	NAG 8-924	6911
31	DREXEL UNIV	J E COOPER	LARC	F B HOUSE	NAS 1-18154	6914
31	PA ST U.-UNIV. PARK	T OWENS	LARC	T P ACKERMAN	NAG 1-999	6937
31	PA ST U.-UNIV. PARK	J M HOELL	LARC	W H BRUNE	NAG 1-1057	6939
31	PA ST U.-UNIV. PARK	T OWENS	LARC	T P ACKERMAN	NAG 1-1095	6941
31	PA ST U.-UNIV. PARK	J G WELLS	LARC	J J OLIVERO	NAG 1-1409	6949
31	PA ST U.-UNIV. PARK	D S MCDUGAL	LARC	T P ACKERMAN	NAG 1-1547	6955
31	PA ST U.-UNIV. PARK	E P CONDON	ARC	W H BRUNE	NAG 2-751	6958
31	PA ST U.-UNIV. PARK	E CONDON	ARC	W BRUNE	NAG 2-826	6960
31	PA ST U.-UNIV. PARK	D O STARR	GSFC	G G MACE	NAG 5-1810	6991
31	PA ST U.-UNIV. PARK	J VARGAS	MSFC	R H CORBET	NAG 8-231	7010
31	PA ST U.-UNIV. PARK	J W KAUFMAN	MSFC	J CLARK	NAG 8-780	7013
31	PA ST U.-UNIV. PARK	C CARRINGTON	MSFC	R C THOMPSON	NAG 8-903	7016
31	PA ST U.-UNIV. PARK	M J KURYLO	HQ	J OLIVERO	NAGW 1302	7020
31	PA ST U.-UNIV. PARK	J D RUMMEL	HQ	J F KASTING	NAGW 1911	7025
31	PA ST U.-UNIV. PARK	R D MCPETERS	HQ	T P ACKERMAN	NAGW 2209	7028
31	PA ST U.-UNIV. PARK	M J KURYLO	HQ	W H BRUNE	NAGW 2670	7032
31	PA ST U.-UNIV. PARK	J C DODGE	HQ	E J BARRON	NAGW 2686	7033
31	PA ST U.-UNIV. PARK	J A KAYE	HQ	J J OLIVERO	NAGW 2712	7034
31	PA ST U.-UNIV. PARK	D M BUTLER	HQ	J W BAO	NGT 00-030-040	7057
31	PA ST U.-UNIV. PARK	D M BUTLER	HQ	A M VOGELMANN	NGT 00-030-042	7058
31	UNIV RHODE ISLAND	J D BARRICK	LARC	B G HEIKES	NAG 1-1222	7189
31	UNIV RHODE ISLAND	B E ANDERSON	LARC	R ARIMOTO	NAG 1-1225	7190
31	UNIV RHODE ISLAND	J M HOELL	LARC	J T MERRILL	NAG 1-1235	7191
31	UNIV RHODE ISLAND	J D BARRICK	LARC	B G HEIKES	NAG 1-1395	7192
31	UNIV RHODE ISLAND	L S WALTER	GSFC	H SIGURDSSON	NAG 5-1844	7194
31	UNIV RHODE ISLAND	J A KAYE	HQ	N W TINDALE	NAGW 3020	7200
31	CLEMSON UNIV-CLEMSON	E G STASSINOPOULOS	GSFC	P J MCNULTY	NAS 5-31750	7232
31	SO DAKOTA SCHL MINES	B A WIELICKI	LARC	S K SENGUPTA	NAG 1-542	7258
31	SO DAKOTA SCHL MINES	R F ADLER	GSFC	P SMITH	NAG 5-386	7259
31	SO DAKOTA SCHL MINES	O W THIELE	GSFC	P L SMITH	NAG 5-1477	7260
31	SO DAKOTA SCHL MINES	J T SUTTLES	HQ	R M WELCH	NAGW 3740	7261
31	SO DAKOTA SCHL MINES	P J SAKIMOTO	GSFC	S C MCCULLOH	NCA 5-115	7264
31	TENNESSEE ST U	E M EMMANUEL	JSC	M AWIPI	NAG 9-455	7292
31	UNIV TENN-KNOXVILLE	J T BERGSTRALH	HQ	K FOX	NAGW 125	7313
31	RICE UNIV	J T BERGSTRALH	HQ	P A CLOUTIER	NAGW 3504	7430
31	RICE UNIV	F C OWENS	HQ	A FEW	NGT 00-050-698	7441
31	TEXAS A&M UNIV	T L BELL	GSFC	G R NORTH	NAG 5-869	7486
31	TEXAS A&M UNIV	J R WANG	GSFC	T T WILHEIT	NAG 5-1423	7487
31	TEXAS A&M UNIV	J WEINMAN	GSFC	T T WILHEIT	NAG 5-1568	7488
31	TEXAS A&M UNIV	O THIELE	GSFC	E ZIPSER	NAG 5-1569	7489
31	TEXAS A&M UNIV	T BELL	GSFC	G R NORTH	NAG 5-1590	7490
31	TEXAS A&M UNIV	O W THIELE	GSFC	E ZIPSER	NAG 5-2033	7491
31	TEXAS A&M UNIV	O W THIELE	GSFC	T WILHEIT	NAG 5-2089	7492
31	TEXAS A&M UNIV	J KAUFMAN	MSFC	J P MCGUIRK	NAG 8-845	7495
31	TEXAS A&M UNIV	S GOODMAN	MSFC	E J ZIPSER	NAG 8-870	7496
31	TEXAS A&M UNIV	S GOODMAN	MSFC	E J ZIPSER	NAG 8-912	7497
31	TEXAS A&M UNIV	C HERMAN	JSC	J S LINDER	NAG 9-331	7498
31	TEXAS A&M UNIV	J S THEON	HQ	R STEWART	NAGW 2922	7524

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31	TEXAS A&M UNIV	J K ALEXANDER	HQ	W H MARLOW	NAGW 3054	7525
31	TEXAS A&M UNIV	J A KAYE	HQ	N W TINDALE	NAGW 3363	7528
31	TEXAS A&M UNIV	J A KAYE	HQ	K P BOWMAN	NAGW 3442	7529
31	TEXAS SOUTHERN UNIV	C R CHAPPELL	MSFC	S A ARYA	NAG 8-818	7572
31	UNIV HOUSTON	D E ROBBINS	JSC	W R SHELDON	NAG 9-213	7587
31	U TX-PAN AMERICAN	J D ATKINSON	JSC	R H FOWLER	NAG 9-551	7648
31	U TX-PAN AMERICAN	J D ATKINSON	JSC	V I ALVARADO	NAG 9-552	7649
31	U TX-PAN AMERICAN	J D ATKINSON	JSC	J WIENER	NAG 9-553	7650
31	U TX-AUSTIN	M BALTUCK	HQ	B D TAPLEY	NAGW 1959	7741
31	U TX-AUSTIN	G ASRAR	HQ	K W BUTZER	NGT 00-030-194	7779
31	U TX-DALLAS	J T BERGSTRALH	HQ	F S JOHNSON	NAGW 1665	7814
31	U TX-DALLAS	J T BERGSTRALH	HQ	R R HODGES	NAGW 3444	7820
31	U TX-DALLAS	J E JOHNSON	MSFC	B A TINSLEY	NAS 8-33827	7823
31	BRIGHAM YOUNG UNIV	D ADAMER	HQ	D LONG	NAGW 2461	7856
31	UNIV UTAH	T OWENS	LARC	K SASSEN	NAG 1-868	7860
31	UNIV UTAH	P MINNIS	LARC	K N LIOU	NAG 1-1048	7861
31	UNIV UTAH	D S MCDUGAL	LARC	K SASSEN	NAG 1-1314	7863
31	UNIV UTAH	H M HELFAND	GSFC	J N PAEGLE	NAG 5-127	7866
31	UNIV UTAH	M D CHOU	GSFC	K N LIOU	NAG 5-1050	7867
31	UNIV UTAH	J D SPINHIRNE	GSFC	K SASSEN	NAG 5-2338	7872
31	UNIV UTAH	G SOFFEN	GSFC	J PAEGLE	NAS 5-30776	7878
31	UTAH ST U	J G WELLS	LARC	P J ESPY	NAG 1-1334	7879
31	UTAH ST U	J G WELLS	LARC	B WICKWAR	NAG 1-1335	7880
31	UTAH ST U	J C LUVALL	MSFC	J J MCDONNELL	NAG 8-897	7888
31	UTAH ST U	J T BERGSTRALH	HQ	K L MILLER	NAGW 1556	7889
31	UTAH ST U	R SPILLINGER	HQ	W WATKINS	NAGW 3029	7893
31	UTAH ST U	J T BERGSTRALH	HQ	K L MILLER	NAGW 3689	7896
31	UTAH ST U	B DUNCAN	MSFC	N STONE	NAS 8-37110	7899
31	CHRISTOPHER NWPORT C	C P RINSLAND	LARC	A M BUONCRISTIANI	NCC 1-179	7921
31	C-WILLIAM AND MARY	J PARK	LARC	D C BENNER	NCC 1-43	7933
31	HAMPTON UNIV	E G STASSINOPOALOS	GSFC	D D VENABLE	NAG 5-929	7975
31	UNIV VIRGINIA	O W THIELE	GSFC	M GARSTANG	NAG 5-1978	8095
31	UNIV VIRGINIA	O W THIELE	GSFC	M GARSTANG	NAG 5-2061	8097
31	UNIV VIRGINIA	J T BERGSTRALH	HQ	R E JOHNSON	NAGW 461	8100
31	UNIV VIRGINIA	K H BERGMAN	HQ	J J DORNING	NAGW 3021	8114
31	UNIV VIRGINIA	J W DREWRY	LARC	M GARSTANG	NCC 1-106	8120
31	VA PLOY INST & ST U	R B LEE	LARC	J R MAHAN	NAG 1-1325	8197
31	VA PLOY INST & ST U	J W YOUNGBLOOD	LARC	J R MAHAN	NAG 1-1456	8206
31	UNIV WASHINGTON	E E REMSBERG	LARC	K K TUNG	NAG 1-1404	8278
31	UNIV WASHINGTON	L J EHERNBERGER	ARC	D R DURRAN	NAG 2-682	8281
31	UNIV WASHINGTON	F P VALERO	ARC	P V HOBBS	NAG 2-777	8285
31	UNIV WASHINGTON	J R WANG	GSFC	K B KATSAROS	NAG 5-943	8295
31	UNIV WASHINGTON	O THIELE	GSFC	R A HOUZE	NAG 5-1599	8299
31	UNIV WASHINGTON	R D MCPETERS	HQ	C B LEOVY	NAGW 471	8319
31	UNIV WASHINGTON	R D MCPETERS	HQ	J R HOLTON	NAGW 662	8320
31	UNIV WASHINGTON	R D MCPETERS	HQ	K K TUNG	NAGW 1605	8330
31	UNIV WASHINGTON	J C DODGE	HQ	K B KATSAROS	NAGW 1688	8331
31	UNIV WASHINGTON	J C DODGE	HQ	R A BROWN	NAGW 1770	8334
31	UNIV WASHINGTON	W L QUAIDE	HQ	J TILLMAN	NAGW 2477	8340
31	UNIV WASHINGTON	J C DODGE	HQ	D L HARTMANN	NAGW 2633	8348
31	UNIV WASHINGTON	J A KAYE	HQ	S G WARREN	NAGW 2743	8351
31	UNIV WASHINGTON	J C DODGE	HQ	D L HARTMAN	NAGW 3475	8364
31	UNIV WASHINGTON	J C DODGE	HQ	R A BROWN	NAGW 3647	8369
31	UNIV WASHINGTON	J T SUTTLES	HQ	P V HOBBS	NAGW 3750	8371
31	UNIV WASHINGTON	J E COOPER	LARC	D L HARTMANN	NAS 1-18157	8374
31	UNIV WASHINGTON	C REBER	GSFC	J R HOLTON	NAS 5-26301	8376
31	UNIV WASHINGTON	S LAMBROS	GSFC	G PARKS	NAS 5-30684	8379
31	UNIV WASHINGTON	G SOFFEN	GSFC	R A BROWN	NAS 5-30774	8380
31	UNIV WASHINGTON	H BLODGET	GSFC	A R GILLESPIE	NAS 5-31372	8381
31	UNIV WASHINGTON	B TOON	ARC	P V HOBBS	NCA 2-623	8384

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31	UNIV WASHINGTON	B TOON	ARC	P HOBBS	NCA 2-818	8386
31	UNIV WASHINGTON	G ASRAR	HQ	M B BAKER	NGT 00-030-004	8389
31	UNIV WASHINGTON	G ASRAR	HQ	K K TUNG	NGT 00-030-005	8390
31	UNIV WASHINGTON	G ASRAR	HQ	D HARTMANN	NGT 00-030-033	8393
31	UNIV WASHINGTON	D M BUTLER	HQ	B M PLOTKIN	NGT 00-030-043	8395
31	UNIV WASHINGTON	D M BUTLER	HQ	R M PINCUS	NGT 00-030-047	8396
31	UNIV WASHINGTON	D M BUTLER	HQ	P W MOTE	NGT 00-030-076	8398
31	UNIV WASHINGTON	D M BUTLER	HQ	J R NORRIS	NGT 00-030-092	8401
31	UNIV WASHINGTON	G ASRAR	HQ	R E BREIDENTHAL	NGT 00-030-176	8406
31	UNIV WASHINGTON	F C OWENS	HQ	D A ROTHROCK	NGT 00-050-652	8413
31	UNIV WASHINGTON	F C OWENS	HQ	M WENSMAN	NGT 00-050-723	8416
31	UNIV WASHINGTON	F SIX	MSFC	M BAKER	NGT 00-051-047	8424
31	UNIV WASHINGTON	I D BROWN	JSC	D E BROWNEE	NSG-9052	8432
31	WEST VIRGINIA UNIV	C R CHAPPELL	MSFC	R N ELI	NAG 8-149	8456
31	WEST VIRGINIA UNIV	G ASRAR	HQ	T WARNER	NGT 00-030-193	8459
31	UNIV WISC-MADISON	T OWENS	LARC	V E SUOMI	NAG 1-553	8488
31	UNIV WISC-MADISON	T OWENS	LARC	E W ELORANTA	NAG 1-882	8489
31	UNIV WISC-MADISON	D S MCDOUGAL	LARC	W L SMITH	NAG 1-1177	8490
31	UNIV WISC-MADISON	D E SISKIND	LARC	M H HITCHMAN	NAG 1-1403	8491
31	UNIV WISC-MADISON	R M ATLAS	GSFC	D R JOHNSON	NAG 5-81	8504
31	UNIV WISC-MADISON	J PFAENDTNER	GSFC	G WAHBA	NAG 5-316	8506
31	UNIV WISC-MADISON	F G HALL	GSFC	J M NORMAN	NAG 5-1416	8515
31	UNIV WISC-MADISON	R ADLER	GSFC	V E SUOMI	NAG 5-1586	8518
31	UNIV WISC-MADISON	L D TRAVIS	GSFC	S S LIMAYE	NAG 5-1609	8519
31	UNIV WISC-MADISON	C KUMMEROW	GSFC	W S OLSON	NAG 5-1659	8521
31	UNIV WISC-MADISON	O W THIELE	GSFC	W L SMITH	NAG 5-1889	8530
31	UNIV WISC-MADISON	T L MILLER	MSFC	M H HITCHMAN	NAG 8-786	8542
31	UNIV WISC-MADISON	P J MEYER	MSFC	W L HIBBARD	NAG 8-828	8543
31	UNIV WISC-MADISON	G JEDLOVEC	MSFC	V SUOMI	NAG 8-892	8544
31	UNIV WISC-MADISON	F R ROBERTSON	MSFC	G DRAC	NAG 8-927	8545
31	UNIV WISC-MADISON	J C DODGE	HQ	W P MENZEL	NAGW 1745	8553
31	UNIV WISC-MADISON	S G TILFORD	HQ	W L SMITH	NAGW 1831	8556
31	UNIV WISC-MADISON	R A SCHIFFER	HQ	G R DIAK	NAGW 1858	8558
31	UNIV WISC-MADISON	J C DODGE	HQ	W L SMITH	NAGW 2053	8559
31	UNIV WISC-MADISON	R D MCPETERS	HQ	G C REINSEL	NAGW 2099	8560
31	UNIV WISC-MADISON	J A KAYE	HQ	M H HITOHMAN	NAGW 2943	8574
31	UNIV WISC-MADISON	K H BERGNAN	HQ	G WAHBA	NAGW 2961	8575
31	UNIV WISC-MADISON	M E MAIDEN	HQ	F P BRETHERTON	NAGW 3286	8579
31	UNIV WISC-MADISON	J C DODGE	HQ	D MARTIN	NAGW 3641	8582
31	UNIV WISC-MADISON	J E COOPER	LARC	W L SMITH	NAS 1-18272	8587
31	UNIV WISC-MADISON	G L MADDREA	LARC	M H HITCHMAN	NAS 1-19958	8588
31	UNIV WISC-MADISON	R ATLAS	GSFC	J ANDERSON	NAS 5-30752	8593
31	UNIV WISC-MADISON	H OSEROFF	GSFC	P MENZEL	NAS 5-31367	8595
31	UNIV WISC-MADISON	E KREINS	GSFC	H REVERCOMB	NAS 5-31375	8596
31	UNIV WISC-MADISON	B CHIN	ARC	L A SROMOVSKY	NCC 2-679	8604
31	UNIV WISC-MADISON	F ROBERTSON	MSFC	G DIAK	NCC 8-12	8607
31	UNIV WYOMING	G L MADDREA	LARC	G VALI	NAS 1-18945	8641
31	MCGILL UNIV	R J KEYNTON	LARC	R DAVIES	NAGW 1466	8670
32	UNIV ALASKA-FAIRBNKS	D PETERSON	ARC	L D HINZMAN	NCA 2-672	1242
32	ARIZONA ST U	I D BROWN	JSC	P R BUSECK	NAG 9-59	1275
32	ARIZONA ST U	I D BROWNE	JSC	C B MOORE	NAG 9-183	1276
32	ARIZONA ST U	J R UNDERWOOD	HQ	J FINK	NAGW 529	1277
32	ARIZONA ST U	J UNDERWOOD	HQ	P R CHRISTENSEN	NAGW 943	1279
32	ARIZONA ST U	J M BOYCE	HQ	R GREELEY	NAGW 1306	1280
32	ARIZONA ST U	J R UNDERWOOD	HQ	SANDERS	NAGW 1740	1283
32	ARIZONA ST U	J R UNDERWOOD	HQ	R GREELEY	NAGW 1774	1284
32	ARIZONA ST U	J D RUMMEL	HQ	J R CRONIN	NAGW 1899	1285
32	ARIZONA ST U	T A MAXWELL	HQ	R GREELEY	NAGW 2064	1286
32	ARIZONA ST U	T A MAXWELL	HQ	R GREELEY	NAGW 2102	1287
32	ARIZONA ST U	J M BOYCE	HQ	J R HOLLOWAY	NAGW 2221	1288

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32	ARIZONA ST U	T A MAXWELL	HQ	P R CHRISTENSEN	NAGW 2289	1293
32	ARIZONA ST U	W L QUAIDE	HQ	R GREELEY	NAGW 2622	1296
32	ARIZONA ST U	J M BOYCE	HQ	R GREELEY	NAGW 2949	1298
32	ARIZONA ST U	H C BRINTON	HQ	P R BUSECK	NAGW 3386	1301
32	ARIZONA ST U	J T BERGSTRALH	HQ	R GREELEY	NAGW 3518	1302
32	ARIZONA ST U	J T BERGSTRALH	HQ	R E GRIMM	NAGW 3544	1303
32	ARIZONA ST U	RAHE	HQ	C MOORE	NAGW 3722	1304
32	ARIZONA ST U	B F SMITH	ARC	R GREELEY	NCC 2-346	1310
32	ARIZONA ST U	M MOORE	HQ	W GRAF	NGT 00-070-155	1315
32	NORTHERN ARIZONA U	J M BOYCE	HQ	H E HOLT	NAGW 979	1320
32	UNIV OF ARIZONA	I D BROWNE	JSC	A J JULL	NAG 9-233	1383
32	UNIV OF ARIZONA	I D BROWNE	JSC	T D SWINDLE	NAG 9-240	1384
32	UNIV OF ARIZONA	J UNDERWOOD	HQ	V R BAKER	NAGW 285	1390
32	UNIV OF ARIZONA	J R UNDERWOOD	HQ	H J MELOSH	NAGW 428	1392
32	UNIV OF ARIZONA	J R UNDERWOOD	HQ	C C PORCO	NAGW 960	1399
32	UNIV OF ARIZONA	J R UNDERWOOD	HQ	R J GREENBERG	NAGW 1029	1400
32	UNIV OF ARIZONA	J UNDERWOOD	HQ	R B SINGER	NAGW 1059	1402
32	UNIV OF ARIZONA	T A MAXWELL	HQ	L A LEBOWSKY	NAGW 1146	1403
32	UNIV OF ARIZONA	P R MAHAFFY	HQ	K C HSIEH	NAGW 1419	1409
32	UNIV OF ARIZONA	J R UNDERWOOD	HQ	W A TITTEMORE	NAGW 1720	1416
32	UNIV OF ARIZONA	T A MAXWELL	HQ	L L HOOD	NAGW 1881	1418
32	UNIV OF ARIZONA	J M BOYCE	HQ	R G STROM	NAGW 2021	1427
32	UNIV OF ARIZONA	T A MAXWELL	HQ	E H LEVY	NAGW 2176	1429
32	UNIV OF ARIZONA	T A MAXWELL	HQ	R B SINGER	NAGW 2233	1431
32	UNIV OF ARIZONA	T A MAXWELL	HQ	A M VICKERY	NAGW 2240	1432
32	UNIV OF ARIZONA	H C BRINTON	HQ	A J DESSLER	NAGW 3051	1470
32	UNIV OF ARIZONA	J K ALEXANDER	HQ	C P SONETT	NAGW 3084	1472
32	UNIV OF ARIZONA	M BALTUCK	HQ	R S KRA	NAGW 3199	1476
32	UNIV OF ARIZONA	H C BRINTON	HQ	M J DRAKE	NAGW 3348	1478
32	UNIV OF ARIZONA	H C BRINTON	HQ	W BOYNTON	NAGW 3373	1480
32	UNIV OF ARIZONA	J T BERGSTRALH	HQ	H J MELOSH	NAGW 3410	1484
32	UNIV OF ARIZONA	J M BOYCE	HQ	C C PORCO	NAGW 3411	1485
32	UNIV OF ARIZONA	J T BERGSTRALH	HQ	V R BAKER	NAGW 3515	1489
32	UNIV OF ARIZONA	J T BERGSTRALH	HQ	A M VICKERY	NAGW 3562	1492
32	UNIV OF ARIZONA	J BOYCE	HQ	T SWINDLE	NAGW 3611	1493
32	UNIV OF ARIZONA	J M BOYCE	HQ	A J JULL	NAGW 3614	1494
32	UNIV OF ARIZONA	J M BOYCE	HQ	J GANGULY	NAGW 3638	1497
32	UNIV OF ARIZONA	J T BERGSTRALH	HQ	R G STROM	NAGW 3705	1499
32	UNIV OF ARIZONA	G ASRAR	HQ	C V HAYNES, J.R.	NGT 00-030-173	1523
32	UNIV OF ARIZONA	F C OWENS	HQ	M J DRAKE	NGT 00-050-612	1535
32	UNIV OF ARIZONA	F C OWENS	HQ	V R BAKER	NGT 00-050-662	1538
32	ARKANSAS COLLEGE	S H GOLDSTEIN	JSC	R BUSTIN	NAG 9-635	1558
32	UNIV ARK-FAYETTEVILL	I D BROWNE	JSC	D W SEARS	NAG 9-81	1561
32	UNIV ARK-FAYETTEVILL	H C BRINTON	HQ	D SEARS	NAGW 3479	1562
32	UNIV ARK-FAYETTEVILL	H C BRINTON	HQ	D SEARS	NAGW 3519	1563
32	CALIF INST OF TECH	I D BROWNE	JSC	G J WASSERBURG	NAG 9-43	1606
32	CALIF INST OF TECH	I D BROWNE	JSC	A L ALBEE	NAG 9-185	1610
32	CALIF INST OF TECH	M B DUKE	JSC	B C MURRAY	NAG 9-570	1611
32	CALIF INST OF TECH	J UNDERWOOD	HQ	D J STEVENSON	NAGW 185	1614
32	CALIF INST OF TECH	P R MAHAFFY	HQ	D S BURNETT	NAGW 1852	1622
32	CALIF INST OF TECH	T A MAXWELL	HQ	T J AHRENS	NAGW 1941	1624
32	CALIF INST OF TECH	T A MAXWELL	HQ	T J AHRENS	NAGW 1953	1625
32	CALIF INST OF TECH	J M BOYCE	HQ	Y L YUNG	NAGW 2204	1632
32	CALIF INST OF TECH	J M BOYCE	HQ	D O MUHLEMAN	NAGW 3011	1653
32	CALIF INST OF TECH	G C BRINTON	HQ	G J WASSERBURG	NAGW 3297	1661
32	CALIF INST OF TECH	C H BRINTON	HQ	H P TAYLOR	NAGW 3329	1663
32	CALIF INST OF TECH	H C BRINTON	HQ	G J WASSERBURG	NAGW 3337	1664
32	CALIF INST OF TECH	J T BERGSTRALH	HQ	D O MUHLEMAN	NAGW 3393	1665
32	CALIF INST OF TECH	J T BERGSTRALH	HQ	D J STEVENSON	NAGW 3491	1666
32	CALIF INST OF TECH	J T BERGSTRALH	HQ	Y L YUNG	NAGW 3507	1667

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32	CALIF INST OF TECH	H C BRINTON	HQ	E STOLPER	NAGW 3533	1668
32	CALIF INST OF TECH	H C BRINTON	HQ	D S BURNETT	NAGW 3534	1669
32	CALIF INST OF TECH	H C BRINTON	HQ	D S BURNETT	NAGW 3592	1670
32	CALIF INST OF TECH	F C OWENS	HQ	D S BURNETT	NGT 00-050-471	1679
32	CALIF INST OF TECH	F C OWENS	HQ	B C MURRY	NGT 00-050-527	1681
32	CALIF INST OF TECH	F C OWENS	HQ	E M STOLPER	NGT 00-050-672	1685
32	CAL ST POLY U-POMONA	D H SCOTT	HQ	L A ROSSBACHER	NAGW 715	1732
32	SAN FRANCISCO ST U	T A MAXWELL	HQ	J B ORENBERG	NAGW 2212	1785
32	SAN JOSE ST U	I D BROWNE	JSC	P A ENGLERT	NAG 9-232	1803
32	SAN JOSE ST U	J M BOYCE	HQ	E A MAROUF	NAGW 3656	1806
32	STANFORD UNIV	M BALTUCK	HQ	W G ERNST	NAGW 1918	1901
32	STANFORD UNIV	T A MAXWELL	HQ	G L TYLER	NAGW 2140	1904
32	STANFORD UNIV	J BOYCE	HQ	R ZARE	NAGW 3629	1921
32	STANFORD UNIV	J T BERGSTRAHL	HQ	G L TYLER	NAGW 3702	1922
32	STANFORD UNIV	D J DES MARAIS	ARC	D R LOWE	NCC 2-721	1983
32	UNIV CALIF-BERKELEY	J UNDERWOOD	HQ	R JEANLOZ	NAGW 604	2096
32	UNIV CALIF-BERKELEY	J M BOYCE	HQ	W ALVAREZ	NAGW 3008	2132
32	UNIV CALIF-BERKELEY	J BOYCE	HQ	K NISHIIZUMI	NAGW 3514	2142
32	UNIV CALIF-BERKELEY	G ASRAR	HQ	D E GRANGER	NGT 00-030-105	2185
32	UNIV CALIF-BERKELEY	G ASRAR	HQ	W ALVAREZ	NGT 00-030-191	2189
32	UNIV CALIF-DAVIS	T BRAKKE	GSFC	S USTIN	NAS 5-31714	2242
32	UNIV CAL-LOS ANGELES	H V FREY	GSFC	D D JACKSON	NAG 5-447	2338
32	UNIV CAL-LOS ANGELES	J E WELKER	GSFC	W KAULA	NAG 5-1040	2344
32	UNIV CAL-LOS ANGELES	L S WALTER	GSFC	R P TURCO	NAG 5-1845	2358
32	UNIV CAL-LOS ANGELES	I D BROWNE	JSC	J T WASSON	NAG 9-40	2366
32	UNIV CAL-LOS ANGELES	J M BOYCE	HQ	D A PAIGE	NAGW 2063	2384
32	UNIV CAL-LOS ANGELES	T A MAXWELL	HQ	W H KAULA	NAGW 2085	2386
32	UNIV CAL-LOS ANGELES	T A MAXWELL	HQ	G SCHUBERT	NAGW 2086	2387
32	UNIV CAL-LOS ANGELES	J D RUMNEL	HQ	J W SCHOPF	NAGW 2147	2388
32	UNIV CAL-LOS ANGELES	T A MAXWELL	HQ	D A PAIGE	NAGW 2226	2390
32	UNIV CAL-LOS ANGELES	W L QUAIDE	HQ	J LUHMANN	NAGW 2295	2394
32	UNIV CAL-LOS ANGELES	A J ANDERSON	HQ	P ROBERTS	NAGW 2546	2399
32	UNIV CAL-LOS ANGELES	M BALTUCK	HQ	G SCHUBERT	NAGW 2646	2403
32	UNIV CAL-LOS ANGELES	R E MURPHY	HQ	W M KAULA	NAGW 2997	2408
32	UNIV CAL-LOS ANGELES	R E MURPHY	HQ	P BIRD	NAGW 3042	2409
32	UNIV CAL-LOS ANGELES	H C BRINTON	HQ	P H WARREN	NAGW 3308	2417
32	UNIV CAL-LOS ANGELES	J T BERGSTRAHL	HQ	D L BINDSCHADLER	NAGW 3484	2423
32	UNIV CAL-LOS ANGELES	J BOYCE	HQ	J WASSON	NAGW 3535	2426
32	UNIV CAL-LOS ANGELES	J T BERGSTRAHL	HQ	G SCHUBERT	NAGW 3546	2427
32	UNIV CAL-SAN DIEGO	B A WIELICKI	LARC	V RAMANATHAN	NAG 1-1259	2473
32	UNIV CAL-SAN DIEGO	J I TROMBKA	GSFC	J ARNOLD	NAG 5-530	2488
32	UNIV CAL-SAN DIEGO	H V FREY	GSFC	D C AGNEW	NAG 5-905	2490
32	UNIV CAL-SAN DIEGO	H FREY	GSFC	J B MINSTER	NAG 5-1023	2491
32	UNIV CAL-SAN DIEGO	J E WELKER	GSFC	D T SANDWELL	NAG 5-1266	2492
32	UNIV CAL-SAN DIEGO	B G BILLS	GSFC	J B MINSTER	NAG 5-1910	2502
32	UNIV CAL-SAN DIEGO	B G BILLS	GSFC	F N SPIESS	NAG 5-1914	2503
32	UNIV CAL-SAN DIEGO	B G BILLS	GSFC	Y BOCK	NAG 5-1917	2504
32	UNIV CAL-SAN DIEGO	B G BILLS	GSFC	D C AGNEW	NAG 5-1932	2505
32	UNIV CAL-SAN DIEGO	I D BROWNE	JSC	G W LUGMAIR	NAG 9-49	2515
32	UNIV CAL-SAN DIEGO	I D BROWNE	JSC	M H THIEMENS	NAG 9-83	2516
32	UNIV CAL-SAN DIEGO	J D RUMMEL	HQ	S R MILLER	NAGW 20	2519
32	UNIV CAL-SAN DIEGO	T A MAXWELL	HQ	L MCFADDEN	NAGW 2215	2536
32	UNIV CAL-SAN DIEGO	M BALTUCK	HQ	Y BOCK	NAGW 2641	2544
32	UNIV CAL-SAN DIEGO	A J ANDERSON	HQ	C CONSTABLE	NAGW 2966	2553
32	UNIV CAL-SAN DIEGO	R E MURPHY	HQ	G BACKUS	NAGW 2967	2554
32	UNIV CAL-SAN DIEGO	R E MURPHY	HQ	D T SANDWELL	NAGW 3035	2556
32	UNIV CAL-SAN DIEGO	H C BRINTON	HQ	J R ARNOLD	NAGW 3255	2561
32	UNIV CAL-SAN DIEGO	H C BRINTON	HQ	G W LUGMAIR	NAGW 3285	2562
32	UNIV CAL-SAN DIEGO	H C BRINTON	HQ	K MARTI	NAGW 3428	2563
32	UNIV CAL-SAN DIEGO	J T BERGSTRAHL	HQ	D T SANDWELL	NAGW 3503	2565

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32	UNIV CAL-SAN DIEGO	J BOYCE	HQ	M THIEMANS	NAGW 3551	2566
32	U CAL-SANTA BARBARA	J D RUMMEL	HQ	S M AWRAMIK	NAGW 1948	2629
32	U CAL-SANTA BARBARA	T BRAKKE	GSFC	D DOZLER	NAS 5-31710	2649
32	U CAL-SANTA CRUZ	J R UNDERWOOD	HQ	F BRIDGES	NAGW 590	2671
32	U CAL-SANTA CRUZ	J K ALEXANDER	HQ	Q WILLIAMS	NAGW 1577	2673
32	UNIV SOUTHERN CALIF	T A MAXWELL	HQ	D S GORSLINE	NAGW 2235	2717
32	UNIV SOUTHERN CALIF	B G MITCHELL	HQ	D A KIEFER	NAGW 2558	2720
32	UNIV SOUTHERN CALIF	J M BOYCE	HQ	D S GORSLINE	NAGW 2902	2724
32	UNIV SOUTHERN CALIF	J T BERGSTRALH	HQ	C G SAMMIS	NAGW 3547	2730
32	UNIV SOUTHERN CALIF	M BALTUCK	HQ	D BURBANK	NAGW 3762	2732
32	COLORADO ST U	G ASRAR	HQ	C A DEMOTT	NGT 00-030-099	2780
32	COLORADO ST U	G ASRAR	HQ	T L JENSEN	NGT 00-030-106	2781
32	COLORADO ST U	G ASRAR	HQ	A S DENNING	NGT 00-030-150	2784
32	UNIV COL-BOULDER	H V FREY	GSFC	J WAHR	NAG 5-485	2829
32	UNIV COL-BOULDER	B G BILLS	GSFC	K LARSON	NAG 5-1908	2864
32	UNIV COL-BOULDER	B G BILLS	GSFC	J B RUNDLE	NAG 5-2353	2883
32	UNIV COL-BOULDER	J R UNDERWOOD	HQ	L W ESPOSITO	NAGW 769	2897
32	UNIV COL-BOULDER	J R UNDERWOOD	HQ	B JAKOSKY	NAGW 771	2898
32	UNIV COL-BOULDER	M BALTUCK	HQ	W W ATKINSON	NAGW 1293	2905
32	UNIV COL-BOULDER	J K ALEXANDER	HQ	F A KRUSE	NAGW 1601	2911
32	UNIV COL-BOULDER	M BALTUCK	HQ	A GOETZ	NAGW 2070	2922
32	UNIV COL-BOULDER	J M BOYCE	HQ	B JAKOSKY	NAGW 2286	2929
32	UNIV COL-BOULDER	T A MAXWELL	HQ	S W LEE	NAGW 2318	2930
32	UNIV COL-BOULDER	M BALTUCK	HQ	F BAGENAL	NAGW 2651	2941
32	UNIV COL-BOULDER	M BALTUCK	HQ	R BILHAM	NAGW 2704	2944
32	UNIV COL-BOULDER	J M BOYCE	HQ	G R STEWART	NAGW 2895	2952
32	UNIV COL-BOULDER	R E MURPHY	HQ	J M WAHR	NAGW 2985	2960
32	UNIV COL-BOULDER	R E MURPHY	HQ	J M WAHR	NAGW 3034	2965
32	UNIV COL-BOULDER	W BARNES	GSFC	A F GOETZ	NAS 5-30552	2989
32	UNIV COL-BOULDER	G ASRAR	HQ	A F GOETZ	NGT 00-030-175	3020
32	UNIV COL-BOULDER	F C OWENS	HQ	W W HAY	NGT 00-050-465	3031
32	UNIV FLORIDA	T A MAXWELL	HQ	S F DERMOTT	NAGW 1923	3390
32	UNIV MIAMI	B G BILLS	GSFC	C HARRISON	NAG 5-1945	3422
32	UNIV MIAMI	B G BILLS	GSFC	T H DIXON	NAG 5-2207	3423
32	UNIV MIAMI	B G BILLS	GSFC	T H DIXON	NAG 5-2208	3424
32	UNIV MIAMI	B G BILLS	GSFC	T H DIXON	NAG 5-2209	3425
32	UNIV MIAMI	M BALTUCK	HQ	C HARRISON	NAGW 2710	3433
32	UNIV MIAMI	M BALTUCK	HQ	T DIXON	NAGW 3316	3434
32	UNIV HAWAII-MANOA	J R UNDERWOOD	HQ	F P FANALE	NAGW 133	3636
32	UNIV HAWAII-MANOA	J UNDERWOOD	HQ	B R HAWKE	NAGW 237	3637
32	UNIV HAWAII-MANOA	J R UNDERWOOD	HQ	P M MARK	NAGW 437	3638
32	UNIV HAWAII-MANOA	J UNDERWOOD	HQ	F P FANALE	NAGW 583	3639
32	UNIV HAWAII-MANOA	J UNDERWOOD	HQ	F P FANALE	NAGW 633	3640
32	UNIV HAWAII-MANOA	J UNDERWOOD JR	HQ	J F BELL	NAGW 712	3641
32	UNIV HAWAII-MANOA	T A MAXWELL	HQ	B R HAWKE	NAGW 1053	3647
32	UNIV HAWAII-MANOA	M BALTUCK	HQ	P J MARK	NAGW 1162	3648
32	UNIV HAWAII-MANOA	J R UNDERWOOD	HQ	S H ZISK	NAGW 1385	3649
32	UNIV HAWAII-MANOA	T A MAXWELL	HQ	P G LUCEY	NAGW 1421	3650
32	UNIV HAWAII-MANOA	M BALTUCK	HQ	S SELF	NAGW 1929	3658
32	UNIV HAWAII-MANOA	T A MAXWELL	HQ	T OWEN	NAGW 2153	3661
32	UNIV HAWAII-MANOA	T A MAXWELL	HQ	T B MCCORD	NAGW 2174	3662
32	UNIV HAWAII-MANOA	R H THOMAS	HQ	P J MOUGINIS-MARK	NAGW 2521	3666
32	UNIV HAWAII-MANOA	J M BOYCE	HQ	P J MARK	NAGW 2955	3671
32	UNIV HAWAII-MANOA	R E MURPHY	HQ	D BERCOVICI	NAGW 3015	3673
32	UNIV HAWAII-MANOA	J M BOYCE	HQ	T B MCCORD	NAGW 3218	3677
32	UNIV HAWAII-MANOA	H C BRINTON	HQ	K KEIL	NAGW 3281	3678
32	UNIV HAWAII-MANOA	H C BRINTON	HQ	F P FANALE	NAGW 3294	3679
32	UNIV HAWAII-MANOA	J T BERGSTRALH	HQ	P J MOUGINIS-MARK	NAGW 3500	3684
32	UNIV HAWAII-MANOA	J T BERGSTRALH	HQ	D BERCOVICI	NAGW 3531	3685
32	UNIV HAWAII-MANOA	C PILCHER	HQ	G J TAYLOR	NAGW 3537	3686

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32	UNIV HAWAII-MANOA	J M BOYCE	HQ	G J TAYLOR	NAGW 3684	3689
32	UNIV HAWAII-MANOA	G ASRAR	HQ	T THODARSON	NGT 00-030-009	3698
32	UNIV HAWAII-MANOA	D M BUTLER	HQ	K A HORTON	NGT 00-030-054	3700
32	UNIV HAWAII-MANOA	G ASRAR	HQ	J R CHRISTIAN	NGT 00-030-104	3701
32	UNIV HAWAII-MANOA	G ASRAR	HQ	R E HOLASEK	NGT 00-030-137	3702
32	UNIV HAWAII-MANOA	J K ALEXANDER	HQ	G J TAYLOR	NGT 00-050-930	3706
32	NORTHWESTERN UNIV	H V FREY	GSFC	S A STEIN	NAG 5-885	3742
32	NORTHWESTERN UNIV	B G BILLS	GSFC	R G GORDON	NAG 5-1944	3746
32	NORTHWESTERN UNIV	B G BILLS	GSFC	S A STEIN	NAG 5-2003	3747
32	NORTHWESTERN UNIV	M BALTUCK	HQ	S STEIN	NAGW 2522	3752
32	NORTHWESTERN UNIV	J T BERGSTRAHL	HQ	D M JURDY	NAGW 3693	3759
32	NORTHWESTERN UNIV	F C OWENS	HQ	S STEIN	NGT 00-050-571	3769
32	SO ILL U-CARBONDALE	R A LANGE	GSFC	D RAVAT	NAG 5-1972	3777
32	UNIV CHICAGO	I D BROWNE	JSC	E ANDERS	NAG 9-52	3807
32	UNIV CHICAGO	I D BROWNE	JSC	L GROSSMAN	NAG 9-54	3808
32	UNIV CHICAGO	J D RUMMEL	HQ	D M RAUP	NAGW 1508	3815
32	UNIV CHICAGO	M MEYER	HQ	D M RAUP	NAGW 1527	3816
32	UNIV CHICAGO	J D RUMMEL	HQ	J J SEPKOSKI	NAGW 1693	3819
32	UNIV CHICAGO	P R MAHAFFY	HQ	T ECONOMU	NAGW 1847	3820
32	UNIV CHICAGO	H C BRINTON	HQ	L GROSSMAN	NAGW 3340	3839
32	UNIV CHICAGO	H C BRINTON	HQ	R LEWIS	NAGW 3342	3840
32	UNIV CHICAGO	H C BRINTON	HQ	A DAVIS	NAGW 3384	3842
32	UNIV CHICAGO	H C BRINTON	HQ	I STEELE	NAGW 3416	3843
32	UNIV CHICAGO	J BOYCE	HQ	S SUTTON	NAGW 3651	3845
32	UNIV CHICAGO	F C OWENS	HQ	L GROSSMAN	NGT 00-050-799	3862
32	UNIV ILLINOIS-CHICGO	I D BROWNE	JSC	A M DAVIS	NAG 9-111	3879
32	UNIV ILLINOIS URBANA	J E WELKER	GSFC	A T HSUI	NAG 5-1312	3907
32	UNIV ILLINOIS URBANA	J T BERGSTRAHL	HQ	A T HSUI	NAGW 3541	3932
32	DE PAUW UNIV	T A MAXWELL	HQ	K H PRICE	NAGW 2336	3964
32	INDIANA ST U	B G BILLS	GSFC	S DE SILVA	NAG 5-1734	3967
32	INDIANA U-BLOOMINGTN	J D RUMMEL	HQ	J M HAYES	NAGW 1940	3979
32	INDIANA U-BLOOMINGTN	H C BRINTON	HQ	A BASU	NAGW 3404	3982
32	INDIANA U-BLOOMINGTN	G ASRAR	HQ	K L LECKRONE	NGT 00-030-125	3984
32	INDIANA U-BLOOMINGTN	I D BROWNE	JSC	A BASU	NSG-9077	3986
32	PURDUE UNIV	M BALTUCK	HQ	W J HINZE	NAGW 1819	4031
32	PURDUE UNIV	J BOYCE	HQ	M LIPSCHUTZ	NAGW 3460	4037
32	PURDUE UNIV	G ASRAR	HQ	M E BAUMGARDNER	NGT 00-030-022	4047
32	EMPORIA ST U	F SIX	MSFC	J S ABER	NAG 8-215	4187
32	KANSAS ST U	D H SCOTT	HQ	J R UNDERWOOD	NAGW 1111	4191
32	UNIV KANSAS	G ASRAR	HQ	A F ARBOGAST	NGT 00-030-140	4223
32	LA ST U-BATON ROUGE	M BALTUCK	HQ	O HUH	NAGW 2052	4269
32	JOHNS HOPKINS UNIV	L S WALTER	GSFC	J W SALISBURY	NAG 5-1837	4352
32	JOHNS HOPKINS UNIV	D E SMITH	GSFC	M T ZUBER	NAG 5-2222	4361
32	JOHNS HOPKINS UNIV	S COHEN	GSFC	M T ZUBER	NAG 5-2223	4362
32	JOHNS HOPKINS UNIV	J R UNDERWOOD	HQ	P OLSON	NAGW 1750	4374
32	JOHNS HOPKINS UNIV	T A MAXWELL	HQ	J W SALISBURY	NAGW 1885	4375
32	JOHNS HOPKINS UNIV	J M BOYCE	HQ	M T ZUBER	NAGW 3394	4409
32	JOHNS HOPKINS UNIV	J T BERGSTRAHL	HQ	M T ZUBER	NAGW 3697	4412
32	JOHNS HOPKINS UNIV	J T LYNCH	HQ	M T ZUBER	NGT 00-050-587	4422
32	UNIV MD-COLLEGE PARK	J L BUFTON	GSFC	D J HARDING	NAG 5-1571	4491
32	UNIV MD-COLLEGE PARK	L S WALTER	GSFC	M C RABENHORST	NAG 5-1834	4499
32	UNIV MD-COLLEGE PARK	J T BERGSTRAHL	HQ	M J A'HEARN	NAGW 1813	4538
32	UNIV MD-COLLEGE PARK	T A MAXWELL	HQ	W L MEINIK	NAGW 2401	4552
32	UNIV MD-COLLEGE PARK	J M BOYCE	HQ	M W SCHAEFER	NAGW 3588	4577
32	UNIV MD-COLLEGE PARK	J BOYCE	HQ	R WALKER	NAGW 3625	4580
32	HARVARD UNIV	H V FREY	GSFC	I I SHAPIRO	NAG 5-538	4682
32	HARVARD UNIV	J E WELKER	GSFC	J BLOXHAM	NAG 5-1369	4684
32	HARVARD UNIV	J D RUMMEL	HQ	A D HOLLAND	NAGW 599	4696
32	HARVARD UNIV	J D RUMMEL	HQ	A H KNOLL	NAGW 893	4698
32	HARVARD UNIV	J M BOYCE	HQ	A G CAMERON	NAGW 1598	4702

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32	HARVARD UNIV	R E MURPHY	HQ	R J O'CONNELL	NAGW 3000	4712
32	HARVARD UNIV	B F CHAO	HQ	J BLOXHAM	NAGW 3467	4715
32	HARVARD UNIV	J D RUMMEL	HQ	A H KNOLL	NAGW 3659	4717
32	MASS INST OF TECH	J E WELKER	GSFC	R HAGER	NAG 5-1686	4816
32	MASS INST OF TECH	B G BILLS	GSFC	T H JORDAN	NAG 5-1905	4822
32	MASS INST OF TECH	B G BILLS	GSFC	A E ROGERS	NAG 5-1906	4823
32	MASS INST OF TECH	B G BILLS	GSFC	B H HAGER	NAG 5-1911	4824
32	MASS INST OF TECH	B G BILLS	GSFC	S C SOLOMAN	NAG 5-1921	4825
32	MASS INST OF TECH	I D BROWNE	JSC	T L GROVE	NAG 9-302	4857
32	MASS INST OF TECH	J R UNDERWOOD	HQ	J WISDOM	NAGW 706	4865
32	MASS INST OF TECH	T A MAXWELL	HQ	S C SOLOMON	NAGW 1937	4882
32	MASS INST OF TECH	T A MAXWELL	HQ	R BURNS	NAGW 2049	4888
32	MASS INST OF TECH	M BALTUCK	HQ	B G BURCHFIEL	NAGW 2155	4890
32	MASS INST OF TECH	T A MAXWELL	HQ	B H HAGER	NAGW 2161	4891
32	MASS INST OF TECH	T A MAXWELL	HQ	R G BURNS	NAGW 2220	4893
32	MASS INST OF TECH	M BALTUCK	HQ	M MCNUTT	NAGW 2629	4900
32	MASS INST OF TECH	J D RUMMEL	HQ	J P GROTZINGER	NAGW 2795	4903
32	MASS INST OF TECH	R E MURPHY	HQ	T A HERRING	NAGW 3007	4909
32	MASS INST OF TECH	R E MURPHY	HQ	T H JORDAN	NAGW 3036	4910
32	MASS INST OF TECH	J BOYCE	HQ	T GROVE	NAGW 3586	4920
32	MASS INST OF TECH	J BOYCE	HQ	R PRINN	NAGW 3608	4921
32	MASS INST OF TECH	W T WILDES	GSFC	A E ROGERS	NAS 5-30543	4925
32	MASS INST OF TECH	E KREINS	GSFC	D H STACLIN	NAS 5-31376	4930
32	MASS INST OF TECH	B WILDES	GSFC	A R WHITNEY	NAS 5-31728	4932
32	UNIV MASS-AMHERST	J D RUMMEL	HQ	W M IRVINE	NAGW 436	5008
32	UNIV MASS-AMHERST	T A MAXWELL	HQ	G E MCGILL	NAGW 1965	5016
32	UNIV MASS-AMHERST	T A MAXWELL	HQ	G E MCGILL	NAGW 2223	5018
32	UNIV MASS-AMHERST	J T BERGSTRALH	HQ	G E MCGILL	NAGW 3532	5021
32	WELLESLEY COLLEGE	J UNDERWOOD	HQ	R G FRENCH	NAGW 1368	5037
32	WORCESTER POLY INST	J M BOYCE	HQ	R C PLUMB	NAGW 2234	5057
32	GRAND VALLEY ST U	R E MURPHY	HQ	A S TROPIN	NAGW 3006	5065
32	MICHIGAN TECH U	L S WALTER	GSFC	W I ROSE	NAG 5-1838	5088
32	MICHIGAN TECH U	G ASRAR	HQ	W I ROSE	NGT 00-030-174	5097
32	U MICHIGAN-ANN ARBOR	T A MAXWELL	HQ	A W ENGLAND	NAGW 2199	5184
32	U MINN-MNPLS-ST PAUL	D S MCDAY	JSC	P WEIBLEN	NAG 9-534	5290
32	U MINN-MNPLS-ST PAUL	M BALTUCK	HQ	D A YUEN	NAGW 1957	5295
32	U MINN-MNPLS-ST PAUL	J M BOYCE	HQ	D L KOHISTEDT	NAGW 3102	5303
32	U MINN-MNPLS-ST PAUL	J BOYCE	HQ	A NIER	NAGW 3610	5308
32	U MISSOURI-COLUMBIA	M BALTUCK	HQ	R L BAUER	NAGW 2634	5385
32	U MISSOURI-COLUMBIA	M BALTUCK	HQ	J F ENGEH	NAGW 3302	5386
32	WASHINGTON UNIV	I D BROWNE	JSC	R M WALKER	NAG 9-55	5407
32	WASHINGTON UNIV	I D BROWNE	JSC	L A HASKIN	NAG 9-56	5408
32	WASHINGTON UNIV	I D BROWNE	JSC	F A PODOSEK	NAG 9-292	5409
32	WASHINGTON UNIV	J UNDERWOOD	HQ	W B MCKINNON	NAGW 432	5413
32	WASHINGTON UNIV	M BALTUCK	HQ	R E ARVIDSON	NAGW 1358	5414
32	WASHINGTON UNIV	P MAHAFFY	HQ	R M WALKER	NAGW 1603	5415
32	WASHINGTON UNIV	T A MAXWELL	HQ	R E ARVIDSON	NAGW 1872	5417
32	WASHINGTON UNIV	C B PILCHER	HQ	R J PHILLIPS	NAGW 2896	5427
32	WASHINGTON UNIV	J M BOYCE	HQ	R J PHILLIPS	NAGW 3024	5432
32	WASHINGTON UNIV	H C BRINTON	HQ	L A HASKIN	NAGW 3343	5435
32	WASHINGTON UNIV	H C BRINTON	HQ	C M HOHENBERG	NAGW 3344	5436
32	WASHINGTON UNIV	J BOYCE	HQ	R M WALKER	NAGW 3371	5437
32	WASHINGTON UNIV	J T BERGSTRALH	HQ	R E ARVIDSON	NAGW 3419	5438
32	WASHINGTON UNIV	J T BERGSTRALH	HQ	B FEAKY	NAGW 3446	5440
32	WASHINGTON UNIV	J T BERGSTRALH	HQ	W B MCKINNON	NAGW 3552	5441
32	WASHINGTON UNIV	J BOYCE	HQ	F PODESEK	NAGW 3634	5442
32	WASHINGTON UNIV	J T BERGSTRALH	HQ	R J PHILLIPS	NAGW 3701	5443
32	WASHINGTON UNIV	L LUTZ	JSC	R WALKER	NAS 9-18383	5445
32	MONTANA ST U	E PRIOR	LARC	J P WILSON	NGT 00-051-196	5465
32	UNIV MONTANA	F SIX	MSFC	N W HINMAN	NAG 8-235	5468



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32	UNIV NEVADA-DRI	A J TUYAHOV	HQ	J V TARANIK	NAGW 2562	5504
32	UNIV NEVADA-RENO	T A MAXWELL	HQ	R A SCHULTZ	NAGW 2347	5512
32	UNIV NEVADA-RENO	C R STOKER	ARC	R A WHARTON	NCA 2-799	5514
32	UNIV NEVADA-RENO	F C OWENS	HQ	J V TARANIK	NGT 00-050-575	5516
32	DARTMOUTH COLLEGE	M BALTUCK	HQ	R BRAKENRIDGE	NAGW 3227	5534
32	DARTMOUTH COLLEGE	J T BERGSTRALH	HQ	G R BRAKENRIDGE	NAGW 3506	5535
32	PRINCETON UNIV	B G BILLS	GSFC	W J MORGAN	NAG 5-1940	5653
32	PRINCETON UNIV	J M BOYCE	HQ	A M RUBIN	NAGW 3589	5671
32	PRINCETON UNIV	J T BERGSTRALH	HQ	J SUPPE	NAGW 3706	5672
32	RUTGERS ST U-N BRNSK	I D BROWNE	JSC	R H HEWINS	NAG 9-35	5694
32	RUTGERS ST U-N BRNSK	I D BROWNE	JSC	J S DELANEY	NAG 9-304	5695
32	RUTGERS ST U-N BRNSK	F C OWENS	HQ	R H HEWINS	NGT 00-050-836	5701
32	RUTGERS ST U-NEWARK	J BOYCE	HQ	G F HERZOG	NAGW 3499	5704
32	RUTGERS ST U-PISCTWY	RAHE	HQ	J DELANEY	NAGW 3649	5712
32	UNIV NEW MEX	L S WALTER	GSFC	L D MCFADDEN	NAG 5-1828	5781
32	UNIV NEW MEX	L S WALTER	GSFC	H B MUSICK	NAG 5-1833	5782
32	UNIV NEW MEX	I D BROWNE	JSC	F J RIETMEIJER	NAG 9-180	5792
32	UNIV NEW MEX	H C BRINTON	HQ	J J PAPIKE	NAGW 3347	5798
32	UNIV NEW MEX	J BOYCE	HQ	F RIETMEIJER	NAGW 3626	5799
32	UNIV NEW MEX	J UNDERWOOD	HQ	W E ELSTON	NGR32-4062	5803
32	UNIV NEW MEX	F C OWENS	HQ	J J PAPIKE	NGT 00-070-223	5805
32	COLUMBIA UNIV	B G BILLS	GSFC	J BEAVAN	NAG 5-1948	5848
32	COLUMBIA UNIV	B G BILLS	GSFC	J BEAVAN	NAG 5-1949	5849
32	COLUMBIA UNIV	G S LAGERLOEF	HQ	A L GORDON	NAGW 1925	5875
32	COLUMBIA UNIV	M BALTUCK	HQ	J L LABRECQUE	NAGW 2703	5887
32	COLUMBIA UNIV	H C BRINTON	HQ	J LONGHI	NAGW 3407	5892
32	COLUMBIA UNIV	H C BRINTON	HQ	J LONGHI	NAGW 3434	5893
32	COLUMBIA UNIV	G ASRAR	HQ	W S BROECKER	NGT 00-030-171	5907
32	COOPER UNION COLLEGE	J T BERGSTRALH	HQ	S W SQUYRES	NAGW 3487	5916
32	CORNELL UNIV	J UNDERWOOD	HQ	J A BURNS	NAGW 310	5963
32	CORNELL UNIV	J R UNDERWOOD	HQ	P D NICHOLSON	NAGW 544	5965
32	CORNELL UNIV	J UNDERWOOD	HQ	S SQUYRES	NAGW 1023	5967
32	CORNELL UNIV	J R UNDERWOOD	HQ	D L TURCOTTE	NAGW 1420	5969
32	CORNELL UNIV	T A MAXWELL	HQ	C SAGAN	NAGW 1870	5971
32	CORNELL UNIV	T A MAXWELL	HQ	J VEVERKA	NAGW 2084	5975
32	CORNELL UNIV	T A MAXWELL	HQ	J VEVERKA	NAGW 2149	5976
32	CORNELL UNIV	T A MAXWELL	HQ	J VEVERKA	NAGW 2186	5977
32	CORNELL UNIV	T A MAXWELL	HQ	P C THOMAS	NAGW 2237	5980
32	CORNELL UNIV	H C BRINTON	HQ	P C THOMAS	NAGW 3274	5994
32	CORNELL UNIV	H C BRINTON	HQ	P C THOMAS	NAGW 3275	5995
32	CORNELL UNIV	J T BERGSTRALH	HQ	D L TURCOTTE	NAGW 3597	6000
32	CORNELL UNIV	F C OWENS	HQ	B L ISACKS	NGT 00-050-517	6012
32	CORNELL UNIV	F C OWENS	HQ	T E JORDAN	NGT 00-050-654	6013
32	CORNELL UNIV	F C OWENS	HQ	T JORDAN	NGT 00-050-852	6021
32	NEW YORK UNIV	J T BERGSTRALH	HQ	C STEWART	NAGW 3675	6043
32	RENSSELAER POLY INST	J R UNDERWOOD	HQ	M J GAFFEY	NAGW 642	6071
32	ST U OF NY-ALBANY	I D BROWNE	JSC	J W DELANO	NAG 9-78	6111
32	ST U OF NY-ALBANY	J C DODGE	HQ	J SCHWAB	NAGW 2978	6112
32	ST U OF NY-ALBANY	H C BRINTON	HQ	J DELANO	NAGW 3357	6114
32	ST U OF NY-ALBANY	J T BERGSTRALH	HQ	J L FOX	NAGW 3731	6115
32	ST U NY-BINGHAMTON	R E MURPHY	HQ	S R DICKMAN	NAGW 3003	6133
32	ST U OF NY-BUFFALO	G BILLS	GSFC	BURSIK	NAG 5-2273	6145
32	ST U OF NY-BUFFALO	F C OWENS	HQ	M F SHERIDAN	NGT 00-050-691	6149
32	ST U NY-STONY BROOK	J R UNDERWOOD	HQ	J LISSAUER	NAGW 1107	6166
32	ST U NY-STONY BROOK	J M BOYCE	HQ	J L FOX	NAGW 2238	6173
32	ST U NY C-PLTTSBRGH	J BOYCE	HQ	G FLYNN	NAGW 3587	6189
32	ST U NY C-BUFFALO	T A MAXWELL	HQ	J S KING	NAGW 2259	6191
32	NC ST U.-RALEIGH	M BALTUCK	HQ	M G BEVIS	NAGW 2625	6300
32	NC ST U.-RALEIGH	G SOFFEN	GSFC	S COHEN	NAS 5-30698	6306
32	OHIO ST U	R H THOMAS	HQ	S L FORMAN	NAGW 2600	6603

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32	OHIO ST U	H V FREY	GSFC	I I MUELLER	NSG-5265	6632
32	UNIV CINCINNATI	J D RUMMEL	HQ	A MILLER	NAGW 3307	6710
32	UNIV OKLAHOMA-NORMAN	H C BRINTON	HQ	S POSTAWKO	NAGW 3031	6797
32	OREGON ST U	I D BROWNE	JSC	R A SCHMITT	NAG 9-63	6813
32	OREGON ST U	T A MAXWELL	HQ	P KOMAR	NAGW 2109	6818
32	OREGON ST U	D ADAMEC	HQ	M H FREILICH	NAGW 3062	6826
32	OREGON ST U	J M BOYCE	HQ	P D KOMAR	NAGW 3217	6827
32	OREGON ST U	H C BRINTON	HQ	R A SCHMITT	NAGW 3545	6830
32	OREGON ST U	F C OWENS	HQ	M ABBOTT	NGT 00-070-193	6855
32	UNIV OREGON-EUGENE	H V FREY	GSFC	E D HUMPHREYS	NAG 5-755	6861
32	UNIV OREGON-EUGENE	B G BILLS	GSFC	E D HUMPHREYS	NAG 5-1903	6862
32	BUCKNELL UNIV	J M BOYCE	HQ	D J LIEN	NAGW 3377	6868
32	LAFAYETTE COLLEGE	J BOYCE	HQ	D HOGENBLOOM	NAGW 3521	6919
32	LEHIGH UNIV	H C BRINTON	HQ	J I GOLDSTEIN	NAGW 3374	6926
32	PA ST U.-UNIV. PARK	B G BILLS	GSFC	K P FURLONG	NAG 5-1909	6995
32	PA ST U.-UNIV. PARK	V SCHNEIDER	JSC	P R CAVANAGH	NAG 9-379	7018
32	PA ST U.-UNIV. PARK	J M BOYCE	HQ	S J MACKWELL	NAGW 3372	7041
32	PA ST U.-UNIV. PARK	G ASRAR	HQ	G E TUCKER	NGT 00-030-122	7060
32	UNIV PENNSYLVANIA	J BOYCE	HQ	R MIDDLETON	NAGW 3616	7096
32	UNIV PITTSBURGH	T A MAXWELL	HQ	B HAPKE	NAGW 2060	7116
32	UNIV PITTSBURGH	T A MAXWELL	HQ	B HAPKE	NAGW 2080	7117
32	UNIV SCRANTON	M M AVERNER	HQ	M A HARDISKY	NAGW 2766	7125
32	BROWN UNIV	I D BROWNE	JSC	C M PIETERS	NAG 9-184	7149
32	BROWN UNIV	J UNDERWOOD	HQ	C M PIETERS	NAGW 28	7151
32	BROWN UNIV	J R UNDERWOOD	HQ	J W HEAD	NAGW 137	7152
32	BROWN UNIV	J R UNDERWOOD	HQ	P H SCHULTZ	NAGW 705	7153
32	BROWN UNIV	J R UNDERWOOD	HQ	J W HEAD	NAGW 713	7154
32	BROWN UNIV	J R UNDERWOOD	HQ	C M PIETERS	NAGW 748	7155
32	BROWN UNIV	J R UNDERWOOD	HQ	P H SCHULTZ	NAGW 855	7156
32	BROWN UNIV	M BALTUCK	HQ	C M PIETERS	NAGW 1118	7157
32	BROWN UNIV	T A MAXWELL	HQ	J W HEAD	NAGW 1873	7158
32	BROWN UNIV	T A MAXWELL	HQ	E M PARMENTIER	NAGW 1928	7159
32	BROWN UNIV	T A MAXWELL	HQ	L S CRUMPLER	NAGW 2171	7160
32	BROWN UNIV	T A MAXWELL	HQ	J W HEAD	NAGW 2185	7161
32	BROWN UNIV	J M BOYCE	HQ	J F MUSTARD	NAGW 3379	7166
32	BROWN UNIV	J M BOYCE	HQ	L S CRUMPLER	NAGW 3412	7167
32	BROWN UNIV	J T BERGSTRALH	HQ	J C AUBELE	NAGW 3486	7169
32	BROWN UNIV	J T BERGSTRALH	HQ	P C HESS	NAGW 3488	7170
32	BROWN UNIV	RAHE	HQ	P HESS	NAGW 3613	7171
32	BROWN UNIV	J BOYCE	HQ	M RUTHERFORD	NAGW 3633	7172
32	BROWN UNIV	RAHE	HQ	C PIETERS	NAGW 3709	7173
32	BROWN UNIV	F C OWENS	HQ	C M PIETERS	NGT 00-050-795	7180
32	BROWN UNIV	J ALEXANDER	HQ	M J RUTHERFORD	NGT 00-050-917	7181
32	BROWN UNIV	J ALEXANDER	HQ	M J RUTHERFORD	NGT 00-050-922	7182
32	BROWN UNIV	D HOLLAND	HQ	P H SCHULTZ	NGT 00-051-058	7185
32	BROWN UNIV	J K ALEXANDER	HQ	P C HESS	NGT 00-070-285	7186
32	BROWN UNIV	D K RUSSELL	HQ	J HEAD	NGT 00-070-326	7187
32	UNIV RHODE ISLAND	J BOYCE	HQ	H SUGURDSSON	NAGW 3496	7202
32	CLEMSON UNIV-CLEMSON	H C BRINTON	HQ	D D CLAYTON	NAGW 3277	7229
32	CLEMSON UNIV-CLEMSON	J BOYCE	HQ	B MEYER	NAGW 3480	7230
32	COL OF CHARLESTON	G A SOFFEN	GSFC	M W COLGAN	NAG 5-1634	7248
32	UNIV SOUTH CAROLINA	I D BROWNE	JSC	J W SHERVAIS	NAG 9-169	7251
32	UNIV SOUTH CAROLINA	J BOYCE	HQ	J SHERVAIS	NAGW 3637	7254
32	MEMPHIS ST U	M BALTUCK	HQ	M A ELLIS	NAGW 3338	7283
32	UNIV TENN-KNOXVILLE	I D BROWNE	JSC	H Y MCSWEEN	NAG 9-58	7310
32	UNIV TENN-KNOXVILLE	D S MCKAY	JSC	L A TAYLOR	NAG 9-409	7311
32	UNIV TENN-KNOXVILLE	H C BRINTON	HQ	L TAYLOR	NAGW 3453	7317
32	UNIV TENN-KNOXVILLE	S GOLDSTEIN	JSC	H V MCSWEEN	NGT 00-050-870	7324
32	UNIV TENN-KNOXVILLE	S GOLDSTEIN	JSC	L A TAYLOR	NGT 00-051-052	7328
32	LAMAR UNIV	D S MCKAY	JSC	J JORDAN	NAG 9-376	7371

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32	LAMAR UNIV	T A SULLIVAN	JSC	J L JORDAN	NAG 9-585	7374
32	LAMAR UNIV	T SULLIVAN	JSC	J L JORDAN	NAG 9-641	7381
32	SOUTHERN METHODIST U	J R UNDERWOOD	HQ	R J PHILLIPS	NAGW 459	7453
32	SOUTHERN METHODIST U	D MCCONNELL	HQ	R J PHILLIPS	NAGW 2355	7454
32	SOUTHERN METHODIST U	J M BOYCE	HQ	V L HANSEN	NAGW 2915	7455
32	SUL ROSS ST U	J M BOYCE	HQ	J L STARK	NAGW 3028	7459
32	TEXAS A&M UNIV	M BALTUCK	HQ	Y W HILDE	NAGW 3272	7527
32	UNIV HOUSTON	I D BROWNE	JSC	A M REID	NAG 9-365	7589
32	UNIV HOUSTON	F HORZ	JSC	A REID	NAG 9-632	7612
32	UNIV HOUSTON	J BOYCE	HQ	A REID	NAGW 3623	7623
32	UNIV HOUSTON	J D RUMMEL	HQ	J ORO	NGR44-5002	7625
32	U TX-AUSTIN	R KOLENKIEWICZ	GSFC	B D TAPLEY	NAG 5-1021	7702
32	U TX-AUSTIN	B G BILLS	GSFC	C R WILSON	NAG 5-1929	7709
32	U TX-AUSTIN	B G BILLS	GSFC	R E SCHUTZ	NAG 5-1936	7710
32	U TX-AUSTIN	B G BILLS	GSFC	B TAPLEY	NAG 5-1939	7711
32	U TX-AUSTIN	M BALTUCK	HQ	B E SCHUTZ	NAGW 2717	7753
32	U TX-AUSTIN	R E MURPHY	HQ	B D TAPLEY	NAGW 3119	7760
32	U TX-AUSTIN	J T BERGSTRAHL	HQ	C K SHUM	NAGW 3505	7764
32	U TX-AUSTIN	J F MCGARRY	GSFC	P J SHELUS	NAS 5-30942	7767
32	U TX-DALLAS	D S MCKAY	JSC	J L CARTER	NAG 9-577	7812
32	U TX-EL PASO	D K RUSSELL	HQ	K MARSAGLIA	NGT 00-070-350	7841
32	UNIV UTAH	B G BILLS	GSFC	D R CURREY	NAG 5-1822	7868
32	UNIV UTAH	B G BILLS	GSFC	D CURREY	NAG 5-2055	7869
32	UNIV VIRGINIA	J UNDERWOOD	HQ	R E JOHNSON	NAGW 186	8099
32	UNIV VIRGINIA	T A MAXWELL	HQ	J W BORING	NAGW 1733	8104
32	UNIV VIRGINIA	T A MAXWELL	HQ	A D HOWARD	NAGW 1926	8105
32	UNIV VIRGINIA	T A MAXWELL	HQ	A D HOWARD	NAGW 2282	8109
32	VA PLOY INST & ST U	R E MURPHY	HQ	J O BROWDER	NAGW 2926	8225
32	CENTRAL WASHINGTON U	G BILLS	GSFC	M RUBIN	NAG 5-2270	8270
32	CENTRAL WASHINGTON U	G BILLS	GSFC	M MILLER	NAG 5-2271	8271
32	CENTRAL WASHINGTON U	M BALTUCK	HQ	M M MILLER	NAGW 3464	8272
32	CENTRAL WASHINGTON U	M BALTUCK	HQ	C RUBIN	NAGW 3691	8273
32	UNIV WASHINGTON	L S WALTER	GSFC	A R GILLESPIE	NAG 5-1847	8301
32	UNIV WASHINGTON	I D BROWNE	JSC	I S MCCALLUM	NAG 9-84	8313
32	UNIV WASHINGTON	J R UNDERWOOD	HQ	K A HOLSAPPLE	NAGW 328	8318
32	UNIV WASHINGTON	M BALTUCK	HQ	J B ADAMS	NAGW 1319	8327
32	UNIV WASHINGTON	J R UNDERWOOD	HQ	S G WARREN	NAGW 1734	8333
32	UNIV WASHINGTON	T A MAXWELL	HQ	J B ADAMS	NAGW 2275	8338
32	UNIV WASHINGTON	H C BRINTON	HQ	D B BROWNLEE	NAGW 3287	8361
32	UNIV WASHINGTON	H C BRINTON	HQ	I S MCCALLUS	NAGW 3352	8362
32	UNIV WASHINGTON	J S THEON	HQ	W J PLANT	NAGW 3527	8365
32	UNIV WASHINGTON	J UNDERWOOD	HQ	J B ADAMS	NSG-7173	8431
32	UNIV WISC-MADISON	G J JEDLOVEC	MSFC	V E SUOMI	NAG 8-974	8546
32	UNIV WISC-MADISON	M BALTUCK	HQ	W P MENZEL	NAGW 3318	8580
32	UNIV WISC-MADISON	M GOODMAN	MSFC	W L SMITH	NAS 8-38499	8599
32	UNIV WYOMING	M BALTUCK	HQ	R MARRS	NAGW 1850	8636
32	UNIV WYOMING	T A MAXWELL	HQ	T R PARISH	NAGW 2222	8637
33	UNIV ALASKA-FAIRBNKS	R H THOMAS	HQ	T J WEINGARTNER	NAGW 2517	1222
33	UNIV ALASKA-FAIRBNKS	R H THOMAS	HQ	H J NIEBAUER	NAGW 2637	1225
33	UNIV ALASKA-FAIRBNKS	R A SCHIFFER	HQ	Z KOWALIK	NAGW 2972	1231
33	UNIV ALASKA-FAIRBNKS	D M BUTLER	HQ	W MASLOWSKI	NGT 00-030-088	1245
33	UNIV ALASKA-FAIRBNKS	F C OWENS	HQ	H J NIEBAUER	NGT 00-050-599	1248
33	UNIV OF ARIZONA	D E WICKLAND	HQ	P N SLATER	NAGW 3543	1490
33	CALIF INST OF TECH	D M BUTLER	HQ	S O PEHKONEN	NGT 00-030-075	1676
33	SAN DIEGO STATE U	M R LEWIS	HQ	C C TREES	NAGW 2154	1775
33	SAN DIEGO STATE U	C MCCLAIN	GSFC	J L MUELLER	NAS 5-31753	1778
33	SAN JOSE ST U	C MCCLAIN	GSFC	W BROENKOW	NAS 5-31746	1807
33	STANFORD UNIV	R H THOMAS	HQ	J VESECKY	NAGW 628	1894
33	STANFORD UNIV	G ASRAR	HQ	J K HOLEN	NGT 00-030-014	1990
33	STANFORD UNIV	G ASRAR	HQ	R FREIFELDER	NGT 00-030-155	1994

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33	UNIV CAL-SAN DIEGO	M R LEWIS	HQ	J J SIMPSON	NAGW 683	2521
33	UNIV CAL-SAN DIEGO	G S LAGERLOEF	HQ	C GAUTIER	NAGW 1978	2531
33	UNIV CAL-SAN DIEGO	G S LAGERLOEF	HQ	C K TAI	NAGW 2200	2535
33	UNIV CAL-SAN DIEGO	B G MITCHELL	HQ	R FROUIN	NAGW 2774	2548
33	UNIV CAL-SAN DIEGO	J S THEON	HQ	W K MELVILLE	NAGW 2946	2551
33	UNIV CAL-SAN DIEGO	J C DODGE	HQ	J J SIMPSON	NAGW 2964	2552
33	UNIV CAL-SAN DIEGO	R E MURPHY	HQ	P NIILER	NAGW 3128	2558
33	UNIV CAL-SAN DIEGO	D E WICKLAND	HQ	R FROUIN	NAGW 3498	2564
33	UNIV CAL-SAN DIEGO	C R MCCLAIN	GSFC	B G MITCHELL	NCC 5-48	2587
33	UNIV CAL-SAN DIEGO	F C OWENS	HQ	T HAYWARD	NGT 00-050-854	2594
33	U CAL-SANTA BARBARA	M R LEWIS	HQ	R C SMITH	NAGW 290	2625
33	U CAL-SANTA BARBARA	R E MURPHY	HQ	D A SIEGEL	NAGW 3145	2640
33	U CAL-SANTA BARBARA	H OSEROFF	GSFC	Z WAN	NAS 5-31370	2647
33	U CAL-SANTA BARBARA	C R MCCLAIN	GSFC	D A SIEGEL	NCC 5-49	2653
33	U CAL-SANTA BARBARA	G ASRAR	HQ	S A GARVER	NGT 00-030-141	2657
33	UNIV SOUTHERN CALIF	R E MURPHY	HQ	R C DUGDALE	NAGW 3149	2727
33	UNIV SOUTHERN CALIF	D E WICKLAND	HQ	D A KIEFER	NAGW 3574	2731
33	UNIV SOUTHERN CALIF	G ASRAR	HQ	R M KUDELA	NGT 00-030-108	2738
33	UNIV COL-BOULDER	S J KZETZBERG	LARC	G H BORN	NAG 1-1491	2803
33	UNIV COL-BOULDER	S J KATZBERG	LARC	G H BORN	NAG 1-1506	2804
33	UNIV COL-BOULDER	R H THOMAS	HQ	R G BARRY	NAGW 641	2895
33	UNIV COL-BOULDER	G S LAGERLOEF	HQ	W J EMERY	NAGW 1110	2901
33	UNIV COL-BOULDER	G S LAGERLOEF	HQ	G BORN	NAGW 1124	2902
33	UNIV COL-BOULDER	R H THOMAS	HQ	J MASLANIK	NAGW 1786	2913
33	UNIV COL-BOULDER	R H THOMAS	HQ	K STEFFEN	NAGW 2158	2926
33	UNIV COL-BOULDER	R A SCHIFFER	HQ	W EMERY	NAGW 2948	2955
33	UNIV COL-BOULDER	M E MAIDEN	HQ	R ARMSTRONG	NAGW 3261	2971
33	UNIV COL-BOULDER	G ASRAR	HQ	M J MILLS	NGT 00-030-131	3016
33	UNIV COL-BOULDER	G ASRAR	HQ	A M MIDDLEBROOK	NGT 00-030-132	3017
33	UNIV COL-BOULDER	J ALEXANDER	HQ	W HAY	NGT 00-050-915	3050
33	YALE UNIV	G ASRAR	HQ	M F COCHRAN	NGT 00-030-143	3132
33	UNIV DELAWARE	G S LAGERLOEF	HQ	F WEBSTER	NAGW 1674	3152
33	UNIV DELAWARE	J S THEON	HQ	X H YAN	NAGW 2953	3156
33	FLORIDA ST U	G S LAGERLOEF	HQ	J J O'BRIEN	NAGW 985	3313
33	FLORIDA ST U	M J KURYLO	HQ	J P CHANTON	NAGW 1823	3315
33	FLORIDA ST U	R E MURPHY	HQ	R IVERSON	NAGW 3495	3323
33	FLORIDA ST U	D M BUTLER	HQ	C A JONES	NGT 00-030-056	3326
33	FLORIDA ST U	G ASRAR	HQ	J CHANTON	NGT 00-030-170	3327
33	FLORIDA ST U	F C OWENS	HQ	J J O'BRIEN	NGT 00-050-653	3333
33	FLORIDA ST U	F C OWENS	HQ	H E FUELBERG	NGT 00-070-095	3336
33	UNIV MIAMI	M R LEWIS	HQ	O BROWN	NAGW 273	3426
33	UNIV MIAMI	M R LEWIS	HQ	P A MATRAL	NAGW 1845	3428
33	UNIV MIAMI	M LEWIS	HQ	R A FINE	NAGW 2073	3429
33	UNIV MIAMI	M R LEWIS	HQ	W M BALCH	NAGW 2426	3431
33	UNIV MIAMI	R E MURPHY	HQ	D OLSEN	NAGW 3619	3435
33	UNIV MIAMI	G SOFFEN	GSFC	O B BROWN	NAS 5-30557	3436
33	UNIV MIAMI	H OSEROFF	GSFC	O B BROWN	NAS 5-31361	3438
33	UNIV MIAMI	G FELDMAN	GSFC	R EVANS	NAS 5-31745	3442
33	UNIV MIAMI	G ASRAR	HQ	M C FORBES	NGT 00-030-026	3444
33	UNIV MIAMI	G ASRAR	HQ	S A YVON	NGT 00-030-114	3445
33	UNIV SOUTH FLORIDA	M R LEWIS	HQ	K L CARDER	NAGW 465	3451
33	UNIV SOUTH FLORIDA	M R LEWIS	HQ	K L CARDER	NAGW 678	3452
33	UNIV SOUTH FLORIDA	R E MURPHY	HQ	J L WALSH	NAGW 3459	3454
33	UNIV SOUTH FLORIDA	D E WICKLAND	HQ	F MULLER-KARGER	NAGW 3483	3455
33	UNIV SOUTH FLORIDA	R E MURPHY	HQ	M E LUTHER	NAGW 3618	3456
33	UNIV SOUTH FLORIDA	C R MCCLAIN	GSFC	K L CARDER	NCC 5-50	3463
33	UNIV SOUTH FLORIDA	A JOYCE	SSC	F M KARGER	NGT 00-070-260	3465
33	UNIV HAWAII-MANOA	D E WICKLAND	HQ	R BIDIGARE	NAGW 3493	3683
33	UNIV HAWAII-MANOA	D M BUTLER	HQ	J N PORTER	NGT 00-030-041	3699
33	UNIV KANSAS	G S LAGERLOEF	HQ	P GOGINENI	NAGW 1278	4204

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33	UNIV KANSAS	R H THOMAS	HQ	S P GOGINENI	NAGW 1984	4208
33	UNIV KANSAS	R H THOMAS	HQ	C TSATSIOULIS	NAGW 3043	4211
33	CTR ENV/ESTUARNE STY	C R MCCLAIN	GSFC	H W DUCKLOW	NAG 5-2267	4321
33	UNIV MD-COLLEGE PARK	H J ZWALLY	GSFC	L HALPERN	NAG 5-1804	4497
33	UNIV MD-COLLEGE PARK	M M RIENECKER	GSFC	J A CARTON	NAG 5-2361	4524
33	UNIV MD-COLLEGE PARK	M LEWIS	HQ	C F D'ELIA	NAGW 2202	4549
33	UNIV MD-COLLEGE PARK	D ADAMEC	HQ	J A CARTON	NAGW 3086	4568
33	UNIV MD-COLLEGE PARK	W J WAGNER	HQ	M J ASEHWANDEN	NAGW 3456	4575
33	HARVARD UNIV	D M BUTLER	HQ	T TOOLAN	NGT 00-030-071	4730
33	HARVARD UNIV	F C OWENS	HQ	J BLOXHAM	NGT 00-050-615	4737
33	MASS INST OF TECH	J G RICHMAN	HQ	C WUNSCH	NAGW 1048	4867
33	MASS INST OF TECH	G S LAGERLOEF	HQ	W K MELVILLE	NAGW 1272	4868
33	MASS INST OF TECH	G ASRAR	HQ	C C WUNSCLT	NGT 00-030-002	4956
33	MASS INST OF TECH	G ASRAR	HQ	N M MAHOWALD	NGT 00-030-109	4959
33	UNIV MASS-AMHERST	R H THOMAS	HQ	C T SWIFT	NAGW 559	5009
33	UNIV MASS-AMHERST	G S LAGERLOEF	HQ	R E MCINTOSH	NAGW 1112	5010
33	WOODS HOLE OCEAN I	G S LAGERLOEF	HQ	K A KELLY	NAGW 1666	5045
33	WOODS HOLE OCEAN I	G S LEGRLOEF	HQ	W J PLANT	NAGW 1675	5046
33	WOODS HOLE OCEAN I	B MITCHELL	HQ	P G BREWER	NAGW 2431	5047
33	WOODS HOLE OCEAN I	R MURPHY	HQ	D M GLOVER	NAGW 3648	5049
33	WOODS HOLE OCEAN I	G ASRAR	HQ	H L BRYDEN	NGT 00-030-006	5051
33	WOODS HOLE OCEAN I	G ASRAR	HQ	C MAURITZEN	NGT 00-030-096	5052
33	WOODS HOLE OCEAN I	F C OWENS	HQ	J W DACEY	NGT 00-050-456	5053
33	U MICHIGAN-ANN ARBOR	D HOLLAND	HQ	L KILLEEN	NGT 00-051-137	5245
33	U NEBRASKA-LINCOLN	R H THOMAS	HQ	M R ANDERSON	NAGW 1266	5487
33	UNIV NEW HAMP-DURHAM	R E MURPHY	HQ	J W CAMPBELL	NAGW 3720	5596
33	PRINCETON UNIV	R H THOMAS	HQ	M J PHELAN	NAGW 1763	5660
33	PRINCETON UNIV	R E MURPHY	HQ	J SARMIENTO	NAGW 3137	5669
33	CITY U OF NY-SYSTEM	G S LAGERLOEF	HQ	W J PIERSON	NAGW 690	5820
33	COLUMBIA UNIV	A J BUSALACCHI	GSFC	E J KATZ	NAG 5-2058	5856
33	COLUMBIA UNIV	G S LAGERLOEF	HQ	M A CANE	NAGW 916	5867
33	COLUMBIA UNIV	R H THOMAS	HQ	S S JACOBS	NAGW 1344	5868
33	COLUMBIA UNIV	R H THOMAS	HQ	A L GORDON	NAGW 1752	5871
33	COLUMBIA UNIV	R H THOMAS	HQ	D G MARTINSON	NAGW 1844	5872
33	COLUMBIA UNIV	M R LEWIS	HQ	J MARRA	NAGW 2058	5877
33	COLUMBIA UNIV	M R LEWIS	HQ	J K BISHOP	NAGW 2189	5879
33	COLUMBIA UNIV	R H THOMAS	HQ	D L MARTINSON	NAGW 2599	5885
33	COLUMBIA UNIV	R H THOMAS	HQ	S S JACOBS	NAGW 3362	5891
33	COLUMBIA UNIV	G ASRAR	HQ	G BOND	NGT 00-030-186	5910
33	COLUMBIA UNIV	G ASRAR	HQ	A L GORDON	NGT 00-030-217	5911
33	HOFSTRA UNIV	G S LAGERLOEF	HQ	D E WEISSMAN	NAGW 468	6031
33	ST U NY-STONY BROOK	G ASRAR	HQ	A SUBRAMANIAM	NGT 00-030-121	6186
33	DUKE UNIV	R E MURPHY	HQ	R BARBER	NAGW 3655	6237
33	NC ST U.-RALEIGH	D E WICKLAND	HQ	D KAMYKOWSKI	NAGW 3575	6303
33	OHIO ST U	R H THOMAS	HQ	K C JEZEK	NAGW 2035	6601
33	OREGON ST U	M R LEWIS	HQ	M R ABBOTT	NAGW 1316	6814
33	OREGON ST U	G S LAGERLOEF	HQ	J G RICHMAN	NAGW 1451	6815
33	OREGON ST U	G S LAGERLOEF	HQ	D B CHELTON	NAGW 1883	6817
33	OREGON ST U	B G MITCHELL	HQ	M R ABBOTT	NAGW 2454	6821
33	OREGON ST U	D ADAMEO	HQ	A F BENNETT	NAGW 2715	6824
33	OREGON ST U	J S THEON	HQ	M H FREILICH	NAGW 3305	6828
33	OREGON ST U	D ADAMEC	HQ	D B CHILTON	NAGW 3510	6829
33	OREGON ST U	D E WICKLAND	HQ	R ZANEVELD	NAGW 3580	6831
33	OREGON ST U	M V PHELPS	HQ	L WEBER	NAGW 3683	6833
33	OREGON ST U	A C JANETOS	HQ	E B SHERR	NAGW 3737	6835
33	OREGON ST U	H OSEROFF	GSFC	M R ABBOTT	NAS 5-31360	6840
33	OREGON ST U	G ASRAR	HQ	M L DICKSON	NGT 00-030-029	6843
33	OREGON ST U	G ASRAR	HQ	F D ZARON	NGT 00-030-037	6844
33	OREGON ST U	D M BUTLER	HQ	A H BARNARD	NGT 00-030-066	6845
33	OREGON ST U	G ASRAR	HQ	B SHERR	NGT 00-030-188	6846

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33	OREGON ST U	F C OWENS	HQ	J G RICHMAN	NGT 00-050-624	6852
33	PA ST U.-UNIV. PARK	G ASRAR	HQ	J H MATHER	NGT 00-030-120	7059
33	UNIV RHODE ISLAND	M R LEWIS	HQ	P CORNILLON	NAGW 858	7195
33	UNIV RHODE ISLAND	M R LEWIS	HQ	J A YODER	NAGW 1891	7196
33	UNIV RHODE ISLAND	G HUNOLT	HQ	P CORNILLON	NAGW 2560	7197
33	UNIV RHODE ISLAND	D ADAMEC	HQ	P C CORMILLON	NAGW 3009	7199
33	UNIV RHODE ISLAND	D ADAMEC	HQ	P C CORNILLION	NAGW 3133	7201
33	UNIV RHODE ISLAND	R E MURPHY	HQ	P STEGMAN	NAGW 3601	7203
33	UNIV RHODE ISLAND	F C OWENS	HQ	J YODER	NGT 00-050-605	7205
33	UNIV RHODE ISLAND	F C OWENS	HQ	J A YODER	NGT 00-070-241	7206
33	UNIV TENN-KNOXVILLE	D E WICKLAND	HQ	G COTA	NAGW 3578	7318
33	RICE UNIV	D M BUTLER	HQ	S CHU	NGT 00-030-072	7433
33	RICE UNIV	D M BUTLER	HQ	G A HADDAD	NGT 00-030-074	7434
33	TEXAS A&M UNIV	G S LAGERLOEF	HQ	R H STEWART	NAGW 1836	7521
33	TEXAS A&M UNIV	G S LAGERLOEF	HQ	R H STEWART	NAGW 1979	7522
33	TEXAS A&M UNIV	J A KAYE	HQ	N W TINDALE	NAGW 3652	7530
33	U TX-AUSTIN	G S LAGERLOEF	HQ	B TAPLEY	NAGW 2132	7742
33	BRIGHAM YOUNG UNIV	J K ALEXANDER	HQ	D G LONG	NAGW 2875	7858
33	BRIGHAM YOUNG UNIV	G ASRAR	HQ	D LONG	NGT 00-030-198	7859
33	OLD DOMINION UNIV	C R MCCLAIN	GSFC	E E HOFMANN	NAG 5-1401	8023
33	OLD DOMINION UNIV	R E MURPHY	HQ	E HOFMANN	NAGW 3550	8025
33	UNIV WASHINGTON	M R LEWIS	HQ	M J PERRY	NAGW 889	8322
33	UNIV WASHINGTON	M R LEWIS	HQ	K BANSE	NAGW 1007	8323
33	UNIV WASHINGTON	R H THOMAS	HQ	D P WINEBRENNER	NAGW 1256	8325
33	UNIV WASHINGTON	G S LAGERLOEF	HQ	K B KATSAROS	NAGW 1322	8328
33	UNIV WASHINGTON	R H THOMAS	HQ	S MARTIN	NAGW 1436	8329
33	UNIV WASHINGTON	R H THOMAS	HQ	D A ROTHROCK	NAGW 2407	8339
33	UNIV WASHINGTON	R H THOMAS	HQ	R COLONY	NAGW 2512	8341
33	UNIV WASHINGTON	R H THOMAS	HQ	D A ROTHROCK	NAGW 2513	8342
33	UNIV WASHINGTON	R H THOMAS	HQ	T C GRENFELL	NAGW 2574	8347
33	UNIV WASHINGTON	J S THEON	HQ	A T JESSUP	NAGW 2888	8354
33	UNIV WASHINGTON	R H THOMAS	HQ	K AAGAARD	NAGW 3174	8358
33	UNIV WASHINGTON	R E MURPHY	HQ	K BANSE	NAGW 3606	8367
33	UNIV WASHINGTON	G ASRAR	HQ	L L LANDRUM	NGT 00-030-020	8392
33	UNIV WASHINGTON	G ASRAR	HQ	J E MUENCH	NGT 00-030-035	8394
33	UNIV WASHINGTON	D M BUTLER	HQ	J L YOUNG	NGT 00-030-058	8397
33	UNIV WASHINGTON	D M BUTLER	HQ	C J BEEGLE	NGT 00-030-085	8399
33	UNIV WASHINGTON	D M BUTLER	HQ	N J MANTUA	NGT 00-030-087	8400
33	UNIV WASHINGTON	F C OWENS	HQ	K BANSE	NGT 00-050-616	8412
33	UNIV WASHINGTON	F C OWENS	HQ	M J PERRY	NGT 00-050-681	8414
33	WHITMAN COLLEGE	A C JANETOS	HQ	S WEILER	NAGW 2714	8445
33	UNIV WISC-MADISON	R H THOMAS	HQ	C R BENTLEY	NAGW 1773	8555
33	U PUERTO RICO-MAYAGZ	J C DODGE	HQ	J M DIAZ	NAGW 2912	8650
33	U PUERTO RICO-MAYAGZ	F C OWENS	HQ	J M LOPEZ	NGT 00-070-099	8653
33	U PUERTO RICO-MAYAGZ	F C OWENS	HQ	J M LOPEZ	NGT 00-070-195	8654
33	U PUERTO RICO-MAYAGZ	F C OWENS	HQ	J M LOPEZ	NGT 00-070-209	8656
33	U PUERTO RICO-MAYAGZ	J T LYNCH	HQ	J M LOPEZ	NGT 00-070-238	8657
33	U PUERTO RICO-MAYAGZ	A JOYCE	SSC	J M LOPEZ	NGT 00-070-259	8658
33	U PUERTO RICO-MAYAGZ	D K RUSSELL	HQ	R VASQUEZ	NGT 00-070-311	8660
33	U PUERTO RICO-MAYAGZ	D K RUSSELL	HQ	J M LOPEZ	NGT 00-070-319	8661
33	U PUERTO RICO-MAYAGZ	D K RUSSELL	HQ	J M LOPEZ	NGT 00-070-320	8662
33	U PUERTO RICO-MAYAGZ	D K RUSSELL	HQ	J M LOPEZ	NGT 00-070-323	8664
39	AUBURN UNIV	J L JONES	LARC	M F ROSE	NAG 1-1329	1023
39	UNIV ALA-HUNTSVILLE	M E MAIDEN	HQ	M E BOTTS	NAGW 3674	1141
39	UNIV ALA-HUNTSVILLE	R P CHASSAY	MSFC	R J NAUMANN	NAS 8-38773	1154
39	UNIV ALASKA-ANCHORAG	D K HALL	GSFC	K M PETERSON	NAG 5-2074	1202
39	UNIV ALASKA-FAIRBNKS	D K HALL	GSFC	M O JEFFRIES	NAG 5-1731	1208
39	UNIV ALASKA-FAIRBNKS	H J ZWALLY	GSFC	C S LINGLE	NAG 5-1748	1209
39	UNIV ALASKA-FAIRBNKS	M J KURYLO	HQ	W S REEBURGH	NAGW 841	1218
39	UNIV ALASKA-FAIRBNKS	J C DODGE	HQ	K G DEAN	NAGW 1835	1220

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39	UNIV ALASKA-FAIRBNKS	R H THOMAS	HQ	D L KANE	NAGW 2519	1223
39	UNIV ALASKA-FAIRBNKS	R H THOMAS	HQ	C LINGLE	NAGW 2614	1224
39	UNIV ALASKA-FAIRBNKS	R A SCHIFFER	HQ	W WEEKS	NAGW 2716	1226
39	UNIV ALASKA-FAIRBNKS	R A SCHIFFER	HQ	C S LINGLE	NAGW 2827	1228
39	UNIV ALASKA-FAIRBNKS	R A SCHIFFER	HQ	G WELLER	NAGW 2829	1229
39	UNIV ALASKA-FAIRBNKS	R H THOMAS	HQ	W D HARRISON	NAGW 3727	1236
39	UNIV ALASKA-FAIRBNKS	G HUNOLT	GSFC	G WELLER	NAS 5-32393	1240
39	UNIV ALASKA-FAIRBNKS	D M BUTLER	HQ	E BREITENBERGER	NGT 00-030-039	1244
39	ARIZONA ST U	H BLODGET	GSFC	P CHRISTENSEN	NAS 5-31371	1306
39	NORTHERN ARIZONA U	B GUENTHER	GSFC	R L WILDEY	NAG 5-2159	1318
39	UNIV OF ARIZONA	F G HALL	GSFC	R E DICKINSON	NAG 5-2310	1371
39	UNIV OF ARIZONA	G ASRAR	HQ	A R HUETE	NAGW 1949	1423
39	UNIV OF ARIZONA	G ASRAR	HQ	S SOROOSHIAN	NAGW 2425	1448
39	UNIV OF ARIZONA	R E MURPHY	HQ	W J SHUTTLEWORTH	NAGW 3368	1479
39	UNIV OF ARIZONA	D E WICKLAND	HQ	A R HUETE	NAGW 3555	1491
39	UNIV OF ARIZONA	D M BUTLER	HQ	X GAO	NGT 00-030-045	1521
39	CALIF INST OF TECH	D E WICKLAND	HQ	M E LIDSTROM	NAGW 3780	1671
39	CAL ST U-LOS ANGELES	D E WICKLAND	HQ	J A GAMON	NAGW 3707	1743
39	SAN DIEGO STATE U	B CHOUDHURY	GSFC	A S HOPE	NAG 5-911	1770
39	SAN DIEGO STATE U	G ASRAR	HQ	J FRANKLIN	NAGW 2031	1774
39	SAN DIEGO STATE U	D E WICKLAND	HQ	J L MUELLER	NAGW 3494	1776
39	SAN DIEGO STATE U	C L HILL	SSC	D A SHAW	NAS13-373	1779
39	SAN DIEGO STATE U	D M BUTLER	HQ	P W LEADLEY	NGT 00-030-091	1782
39	SAN DIEGO STATE U	G ASRAR	HQ	P W LEADLEY	NGT 00-030-134	1783
39	STANFORD UNIV	G BULLOCK	GSFC	R A HELLIWELL	NAG 5-1103	1884
39	STANFORD UNIV	A C JANETOS	HQ	P M VITOUSEK	NAGW 3049	1916
39	STANFORD UNIV	P B RUSSELL	ARC	W G ERNST	NCA 2-768	1964
39	STANFORD UNIV	D M BUTLER	HQ	A R TOWNSEND	NGT 00-030-051	1991
39	STANFORD UNIV	D M BUTLER	HQ	M G BAC	NGT 00-030-078	1992
39	UNIV CALIF-BERKELEY	J M DAVIS	MSFC	R P LIN	NAG 8-830	2092
39	UNIV CALIF-BERKELEY	J D BOHLIN	HQ	G R SMITH	NAGW 2635	2122
39	UNIV CALIF-BERKELEY	C L HILL	SSC	G S BIGING	NAS13-375	2159
39	UNIV CALIF-BERKELEY	G ASRAR	HQ	A P KINZIG	NGT 00-030-025	2181
39	UNIV CALIF-BERKELEY	D M BUTLER	HQ	M S TORN	NGT 00-030-048	2182
39	UNIV CALIF-BERKELEY	D M BUTLER	HQ	B L COX	NGT 00-030-073	2183
39	UNIV CALIF-BERKELEY	D M BUTLER	HQ	S P ANDERSON	NGT 00-030-083	2184
39	UNIV CALIF-BERKELEY	G ASRAR	HQ	S E HOBBIE	NGT 00-030-154	2187
39	UNIV CALIF-BERKELEY	G ASRAR	HQ	M E POWER	NGT 00-030-165	2188
39	UNIV CALIF-DAVIS	C E DULLER	ARC	R K WASHINO	NAG 2-773	2221
39	UNIV CALIF-DAVIS	R H THOMAS	HQ	S USTIN	NAGW 2636	2240
39	UNIV CALIF-DAVIS	G ASRAR	HQ	T W FAN	NGT 00-030-167	2273
39	UNIV CALIF-IRVINE	L WALTER	GSFC	S TRUMBORE	NAG 5-1840	2290
39	UNIV CALIF-IRVINE	F G HALL	GSFC	S TRUMBORE	NAG 5-2306	2293
39	UNIV CALIF-IRVINE	A C JANETOS	HQ	F S ROWLAND	NAGW 2738	2301
39	UNIV CALIF-IRVINE	A C JANETOS	HQ	S TRUMBORE	NAGW 2748	2302
39	UNIV CALIF-IRVINE	A C JANETOS	HQ	W S REEBURGH	NAGW 3053	2304
39	UNIV CALIF-IRVINE	D M BUTLER	HQ	M B DECKER	NGT 00-030-067	2308
39	UNIV CAL-LOS ANGELES	J D RUMMEL	HQ	J F KERRIDGE	NAGW 3725	2431
39	UNIV CAL-SAN DIEGO	B CHOUDHURY	GSFC	C H GAUTIER	NAG 5-900	2489
39	UNIV CAL-SAN DIEGO	A C JANETOS	HQ	R J FROUIN	NAGW 2727	2545
39	UNIV CAL-SAN DIEGO	A C JANETOS	HQ	M WAHLEN	NAGW 2729	2546
39	UNIV CAL-SAN DIEGO	R SCHIFFER	HQ	U HERZFELD	NAGW 2746	2547
39	UNIV CAL-SAN DIEGO	R E MURPHY	HQ	C D KEELING	NAGW 2987	2555
39	UNIV CAL-SAN DIEGO	G SOFFEN	GSFC	J B MINSTER	NAS 5-33019	2573
39	U CAL-SANTA BARBARA	B CHOUDHURY	GSFC	J DOZIER	NAG 5-917	2621
39	U CAL-SANTA BARBARA	H M GOODMAN	MSFC	J E ESTES	NAG 8-812	2623
39	U CAL-SANTA BARBARA	M GOODMAN	MSFC	J E ESTES	NAG 8-929	2624
39	U CAL-SANTA BARBARA	G ASRAR	HQ	J DOZIER	NAGW 1265	2627
39	U CAL-SANTA BARBARA	J C DODGE	HQ	C GAUTIER	NAGW 2458	2633
39	U CAL-SANTA BARBARA	G ASRAR	HQ	J DOZIER	NAGW 2602	2635

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39	U CAL-SANTA BARBARA	A C JANETOS	HQ	J MELACK	NAGW 2724	2636
39	U CAL-SANTA BARBARA	E KRIENS	GSFC	C GAUTIER	NAS 5-31374	2648
39	U CAL-SANTA BARBARA	G ASRAR	HQ	S K HAMILTON	NGT 00-030-013	2654
39	U CAL-SANTA BARBARA	D M BUTLER	HQ	C WAELEBROECK	NGT 00-030-057	2655
39	COLORADO ST U	F G HALL	GSFC	R A PIELKE	NAG 5-2078	2760
39	COLORADO ST U	F G HALL	GSFC	R A PIELKE	NAG 5-2302	2761
39	COLORADO ST U	D E WICKLAND	HQ	D S SCHIMEL	NAGW 1828	2767
39	COLORADO ST U	R E MURPHY	HQ	D S SCHIMEL	NAGW 2662	2771
39	COLORADO ST U	G ASRAR	HQ	V B BROWN	NGT 00-030-144	2782
39	UNIV COL-BOULDER	P J WETZEL	GSFC	R L GROSSMAN	NAG 5-904	2834
39	UNIV COL-BOULDER	H K RAMAPRIYAN	GSFC	W EMERY	NAG 5-1715	2853
39	UNIV COL-BOULDER	F G HALL	GSFC	R K MONSON	NAG 5-2287	2880
39	UNIV COL-BOULDER	D M BUTLER	HQ	R BYERLY	NAGW 1415	2908
39	UNIV COL-BOULDER	R H THOMAS	HQ	R G BARRY	NAGW 1839	2914
39	UNIV COL-BOULDER	N B DOUGLAS	HQ	J WAHR	NAGW 1843	2915
39	UNIV COL-BOULDER	R H THOMAS	HQ	R G BARRY	NAGW 2598	2940
39	UNIV COL-BOULDER	R A SCHIFFER	HQ	U RADOK	NAGW 2706	2945
39	UNIV COL-BOULDER	G ASRAR	HQ	V K GUPTA	NAGW 2731	2946
39	UNIV COL-BOULDER	M M MAIDEN	HQ	W EMERY	NAGW 3224	2970
39	UNIV COL-BOULDER	R H THOMAS	HQ	J KEY	NAGW 3437	2976
39	UNIV COL-BOULDER	G ASRAR	HQ	S D PECKHAM	NGT 00-030-023	3010
39	UNIV COL-BOULDER	D M BUTLER	HQ	F SIGMUNDSSON	NGT 00-030-094	3012
39	UNIV COL-BOULDER	D BUTLER	HQ	T SEASTEDT	NGT 00-030-095	3013
39	UNIV COL-BOULDER	G ASRAR	HQ	A ALAM	NGT 00-030-097	3014
39	UNIV COL-BOULDER	G ASRAR	HQ	R VILLALBA	NGT 00-030-133	3018
39	UNIV COL-BOULDER	G ASRAR	HQ	G H BORN	NGT 00-030-207	3024
39	UNIV COL-BOULDER	G ASRAR	HQ	R K MONSON	NGT 00-030-210	3025
39	UNIV DENVER	C P RINSLAND	LARC	D G MURCRAE	NSG-1432	3094
39	YALE UNIV	G ASRAR	HQ	C G WRAY	NGT 00-030-118	3131
39	UNIV DELAWARE	D E WICKLAND	HQ	C J WILLMOTT	NAGW 1884	3153
39	GEORGE WASHINGTON U	J A WEINMAN	GSFC	N M KHADR	NAG 5-1807	3178
39	GEORGE WASHINGTON U	F G HALL	GSFC	R LANG	NCC 5-53	3195
39	FLORIDA ST U	B N HOLBEN	GSFC	S E NICHOLSON	NAG 5-764	3299
39	FLORIDA ST U	F G HALL	GSFC	E A SMITH	NAG 5-2072	3306
39	FLORIDA ST U	G ASRAR	HQ	E A SMITH	NAGW 1840	3316
39	FLORIDA ST U	M M AVERNER	HQ	J P CHANTON	NAGW 2782	3318
39	FLORIDA ST U	G SOFFEN	GSFC	T N KRISHNAMURTI	NAS 5-30932	3325
39	UNIV FLORIDA	R E MURPHY	HQ	C S HOLLING	NAGW 2524	3393
39	UNIV FLORIDA	D E WICKLAND	HQ	C S HOLLING	NAGW 3698	3400
39	UNIV MIAMI	H K RAMAPRIYAN	GSFC	R H EVANS	NAG 5-1788	3421
39	UNIV GEORGIA	D K RUSSELL	HQ	R HODSON	NGT 00-070-345	3612
39	UNIV HAWAII-MANOA	J MAZZURCO	ARC	E A GRASER	NAG 2-758	3614
39	UNIV HAWAII-MANOA	M BALTUCK	HQ	P MOUQINIS-MARK	NAGW 2468	3665
39	UNIV HAWAII-MANOA	W LAU	GSFC	R LUKAS	NAS 5-31722	3696
39	NORTHWESTERN UNIV	R H THOMAS	HQ	G E BIRCHFIELD	NAGW 2695	3754
39	UNIV CHICAGO	R D MCPETERS	HQ	G C TIAO	NAGW 2057	3824
39	UNIV CHICAGO	R H THOMAS	HQ	D MACAYEAL	NAGW 2588	3830
39	UNIV ILLINOIS URBANA	H J ZWALLY	GSFC	J W WALSH	NAG 5-1295	3906
39	PURDUE UNIV	A J TUYAHOV	HQ	C J JOHANNSEN	NAGW 925	4029
39	PURDUE UNIV	W HUNTRESS	HQ	C J JOHANNSEN	NAGW 1472	4030
39	IOWA ST U	G ASRAR	HQ	R W TURNER	NGT 00-030-008	4125
39	UNIV IOWA	G BULLOCK	GSFC	D A GURNETT	NAG 5-1093	4145
39	UNIV IOWA	G ASRAR	HQ	W F KRAJEWSKI	NGT 00-030-160	4181
39	UNIV KANSAS	M OWE	GSFC	S P GOGINENI	NAG 5-912	4198
39	UNIV KANSAS	F G HALL	GSFC	S P GOGINENI	NAG 5-2344	4201
39	UNIV KANSAS	R H THOMAS	HQ	S COGINENI	NAGW 3346	4212
39	UNIV KANSAS	R H THOMAS	HQ	S P GOGINENI	NAGW 3700	4214
39	UNIV KANSAS	D M BUTLER	HQ	M E JAKUBASKAS	NGT 00-030-062	4222
39	LA ST U-BATON ROUGE	G LASANE	HQ	H H ROBERTS	NAGW 1552	4267
39	UNIV MAINE-ORONO	M M AVERNER	HQ	G M KING	NAGW 2780	4314



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39	UNIV MAINE-ORONO	D E WICKLAND	HQ	G M KING	NAGW 3746	4315
39	JOHNS HOPKINS UNIV	E HALL	GSFC	J KOU	NAG 5-2128	4359
39	JOHNS HOPKINS UNIV	S G TILFORD	HQ	B I EDELSON	NAGW 3068	4400
39	U MARYLAND-BALTIMORE	E R KREINS	GSFC	L L STROW	NAS 5-31378	4440
39	UNIV MD-COLLEGE PARK	D L TOLL	GSFC	P J SELLERS	NAG 5-892	4474
39	UNIV MD-COLLEGE PARK	C J TUCKER	GSFC	C O JUSTICE	NAG 5-942	4476
39	UNIV MD-COLLEGE PARK	B N HOLBEN	GSFC	S D PRINCE	NAG 5-1471	4488
39	UNIV MD-COLLEGE PARK	A J KRUEGER	GSFC	C C SCHNETZLER	NAG 5-1971	4505
39	UNIV MD-COLLEGE PARK	E T ENGMAN	GSFC	J K SIRCAR	NAG 5-2005	4509
39	UNIV MD-COLLEGE PARK	F HALL	GSFC	R D HUDSON	NAG 5-2117	4515
39	UNIV MD-COLLEGE PARK	F G HALL	GSFC	S N GOWARD	NAG 5-2293	4517
39	UNIV MD-COLLEGE PARK	F G HALL	GSFC	C L WALTHALL	NAG 5-2308	4519
39	UNIV MD-COLLEGE PARK	E MIDDLETON	GSFC	J SULLIVAN	NAG 5-2339	4520
39	UNIV MD-COLLEGE PARK	D E WICKLAND	HQ	S N GOWARD	NAGW 1152	4530
39	UNIV MD-COLLEGE PARK	G ASRAR	HQ	P SELLERS	NAGW 1269	4532
39	UNIV MD-COLLEGE PARK	G ASRAR	HQ	S D PRINCE	NAGW 1967	4543
39	UNIV MD-COLLEGE PARK	R H WARING	HQ	J R TOWNSHEND	NAGW 2723	4558
39	UNIV MD-COLLEGE PARK	D E WICKLAND	HQ	C L WALTHALL	NAGW 3193	4570
39	UNIV MD-COLLEGE PARK	M F MAIDEN	HQ	J R TOWNSHEND	NAGW 3226	4572
39	UNIV MD-COLLEGE PARK	M E MAIDEN	HQ	J TOWNSHEND	NAGW 3235	4573
39	UNIV MD-COLLEGE PARK	H OSEROFF	GSFC	C JUSTICE	NAS 5-31365	4591
39	UNIV MD-COLLEGE PARK	D M BUTLER	HQ	D O FULLER	NGT 00-030-089	4608
39	UNIV MD-COLLEGE PARK	G ASRAR	HQ	S D PRINCE	NGT 00-030-168	4610
39	UNIV MD-COLLEGE PARK	G ASRAR	HQ	J R TOWNSHEND	NGT 00-030-201	4611
39	CLARK UNIV	M R HELFERT	HQ	R KASPERSON	NAGW 3187	4670
39	CLARK UNIV	G ASRAR	HQ	J R EASTMAN	NGT 00-030-179	4671
39	HARVARD UNIV	F G HALL	GSFC	S C WOFSY	NAG 5-2253	4694
39	HARVARD UNIV	A C JANETOS	HQ	S C WOFSY	NAGW 3082	4713
39	HARVARD UNIV	E RODGERS	MSFC	R MITCHELL	NCC 8-17	4726
39	HARVARD UNIV	D M BUTLER	HQ	S L BASSOW	NGT 00-030-044	4729
39	HARVARD UNIV	G ASRAR	HQ	F A BAZZAZ	NGT 00-030-195	4736
39	MASS INST OF TECH	L A LUTZ	JSC	H C ALEXANDER	NAG 9-125	4855
39	MASS INST OF TECH	G ASRAR	HQ	P EAGLESON	NAGW 1696	4879
39	MASS INST OF TECH	R E MURPHY	HQ	D ENTEKHABI	NAGW 2942	4907
39	MASS INST OF TECH	W LAU	GSFC	P EAGLESON	NAS 5-31721	4931
39	MASS INST OF TECH	G SOFFEN	GSFC	T HERRING	NAS 5-33017	4933
39	MASS INST OF TECH	G SOFFEN	GSFC	R REILINGER	NAS 5-33020	4934
39	MASS INST OF TECH	D M BUTLER	HQ	E A ELTAHIR	NGT 00-030-086	4958
39	UNIV MASS-AMHERST	R H THOMAS	HQ	C T SWIFT	NAGW 2581	5020
39	WOODS HOLE OCEAN I	M M AVERNER	HQ	J W DACEY	NAGW 2783	5048
39	MICHIGAN TECH U	D M BUTLER	HQ	J M KWIATKOWSKI	NGT 00-030-061	5095
39	SAGINAW VALLEY ST U	D M BUTLER	HQ	R S YIEN	NAGW 2010	5101
39	U MICHIGAN-ANN ARBOR	C E DULLER	ARC	J F VESECKY	NAG 2-740	5122
39	U MICHIGAN-ANN ARBOR	H K RAMAPRIYAN	GSFC	A W ENGLAND	NAG 5-1781	5147
39	U MICHIGAN-ANN ARBOR	J C DODGE	HQ	F T ULABY	NAGW 1101	5162
39	U MICHIGAN-ANN ARBOR	D E WICKLAND	HQ	M C DOBSON	NAGW 1362	5164
39	U MICHIGAN-ANN ARBOR	G ASRAR	HQ	A W ENGLAND	NAGW 1983	5176
39	U MICHIGAN-ANN ARBOR	G ASRAR	HQ	F ULABY	NAGW 2151	5182
39	U MICHIGAN-ANN ARBOR	R E MURPHY	HQ	A W ENGLAND	NAGW 3430	5196
39	U MICHIGAN-ANN ARBOR	D M BUTLER	HQ	W KUHN	NGT 00-030-208	5227
39	WAYNE ST U	F G HALL	GSFC	N S GOEL	NAG 5-2237	5257
39	WAYNE ST U	D E WICKLAND	HQ	N S GOEL	NAGW 3260	5258
39	U MINN-MNPLS-ST PAUL	W HUNTRESS	HQ	M E BAUER	NAGW 1431	5292
39	U MINN-MNPLS-ST PAUL	K H BERGMAN	HQ	A FRIEDMAN	NAGW 3103	5304
39	U MINN-MNPLS-ST PAUL	G ASRAR	HQ	A M BRAUNSCHEWIG	NGT 00-030-017	5316
39	U MINN-MNPLS-ST PAUL	D M BUTLER	HQ	P KUMAR	NGT 00-030-055	5318
39	U MINN-MNPLS-ST PAUL	G ASRAR	HQ	E F GEORGIOU	NGT 00-030-213	5320
39	JACKSON ST U	R L YANG	LARC	D LOVE	NAG 1-1389	5335
39	WASHINGTON UNIV	D E SMITH	GSFC	R J PHILLIPS	NAG 5-2246	5404
39	UNIV MONTANA	P J SELLERS	GSFC	R E HUNT	NAG 5-2065	5466

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39	UNIV MONTANA	F G HALL	GSFC	S W RUNNING	NAG 5-2297	5467
39	UNIV MONTANA	D E WICKLAND	HQ	S W RUNNING	NAGW 952	5469
39	UNIV MONTANA	D E WICKLAND	HQ	S W RUNNING	NAGW 1892	5470
39	UNIV MONTANA	R E MURPHY	HQ	R NEMANI	NAGW 3151	5471
39	UNIV MONTANA	H OSEROFF	GSFC	S W RUNNING	NAS 5-31368	5472
39	UNIV MONTANA	G ASRAR	HQ	L L PIERCE	NGT 00-030-007	5473
39	UNIV MONTANA	G ASRAR	HQ	S W RUNNING	NGT 00-030-216	5475
39	U NEBRASKA-LINCOLN	D L TOLL	GSFC	B L BLAD	NAG 5-894	5482
39	U NEBRASKA-LINCOLN	D W DEERING	GSFC	B L BLAD	NAG 5-1762	5484
39	U NEBRASKA-LINCOLN	F G HALL	GSFC	D E JELINSKI	NAG 5-2331	5485
39	U NEBRASKA-LINCOLN	R H THOMAS	HQ	B L HANSEN	NAGW 3106	5491
39	U NEBRASKA-LINCOLN	M R HELFERT	HQ	D RUNDQUIST	NAGW 3262	5492
39	DARTMOUTH COLLEGE	R H THOMAS	HQ	K C JEZEK	NAGW 1838	5530
39	UNIV NEW HAMP-DURHAM	F G HALL	GSFC	P M CRILL	NAG 5-2289	5557
39	UNIV NEW HAMP-DURHAM	F G HALL	GSFC	R C HARRISS	NAG 5-2290	5558
39	UNIV NEW HAMP-DURHAM	J LAWLESS	HQ	B E MOORE	NAGW 980	5566
39	UNIV NEW HAMP-DURHAM	D E WICKLAND	HQ	B N ROCK	NAGW 1245	5567
39	UNIV NEW HAMP-DURHAM	D E WICKLAND	HQ	J D ABER	NAGW 1825	5571
39	UNIV NEW HAMP-DURHAM	D E WICKLAND	HQ	B MOORE	NAGW 1888	5573
39	UNIV NEW HAMP-DURHAM	S TILLFORD	HQ	B MOORE	NAGW 2294	5575
39	UNIV NEW HAMP-DURHAM	R E MURPHY	HQ	B MOORE	NAGW 2669	5578
39	UNIV NEW HAMP-DURHAM	A C JANETOS	HQ	R C HARRISS	NAGW 2726	5580
39	UNIV NEW HAMP-DURHAM	A C JANETOS	HQ	B N ROCK	NAGW 2741	5582
39	UNIV NEW HAMP-DURHAM	A C JANETOS	HQ	D L SKOLE	NAGW 2749	5583
39	UNIV NEW HAMP-DURHAM	M M AVERNER	HQ	M E HINES	NAGW 2771	5587
39	UNIV NEW HAMP-DURHAM	A C JANETOS	HQ	J ABER	NAGW 3194	5590
39	UNIV NEW HAMP-DURHAM	T BRAKE	GSFC	J ABER	NAS 5-31379	5600
39	UNIV NEW HAMP-DURHAM	D M BUTLER	HQ	A D NOBRE	NGT 00-030-059	5604
39	UNIV NEW HAMP-DURHAM	G ASRAR	HQ	W MCDOWELL	NGT 00-030-196	5605
39	UNIV NEW HAMP-DURHAM	F C OWENS	HQ	R C HARRIS	NGT 00-050-670	5609
39	PRINCETON UNIV	M OWE	GSFC	E MILLY	NAG 5-899	5641
39	PRINCETON UNIV	S HAKKINEN	GSFC	G L MELLOR	NAG 5-1556	5644
39	PRINCETON UNIV	E T ENGMAN	GSFC	E WOOD	NAG 5-1628	5645
39	PRINCETON UNIV	F G HALL	GSFC	E WOOD	NAG 5-2326	5655
39	PRINCETON UNIV	D E WICKLAND	HQ	S W PACALA	NAGW 3741	5673
39	PRINCETON UNIV	W LAU	GSFC	E WOOD	NAS 5-31719	5675
39	PRINCETON UNIV	D M BUTLER	HQ	D S LIN	NGT 00-030-049	5677
39	PRINCETON UNIV	D M BUTLER	HQ	B M LOFGREN	NGT 00-030-090	5678
39	RUTGERS ST U-N BRNSK	D M BUTLER	HQ	M G HUGHES	NGT 00-030-063	5699
39	RUTGERS ST U-N BRNSK	G ASRAR	HQ	D A ROBINSON	NGT 00-030-164	5700
39	RUTGERS ST U-PISCTWY	R H THOMAS	HQ	D A ROBINSON	NAGW 3568	5711
39	RUTGERS ST U-PISCTWY	D M BUTLER	HQ	S S LUQUE	NGT 00-030-070	5713
39	NEW MEX ST U-LAS CR	R S NOCK	GSFC	J E HALLIGAN	NAS 5-29800	5758
39	NEW MEX ST U-LAS CR	R S NOCK	GSFC	J E HALLIGAN	NAS 5-31125	5761
39	UNIV NEW MEX	A KAHN	HQ	T M BUDGE	NASW 4683	5802
39	COLUMBIA UNIV	D E WICKLAND	HQ	G C JACOBY	NAGW 1851	5873
39	COLUMBIA UNIV	T HAMILTON	GSFC	G R NORTH	NAS 5-33018	5896
39	COLUMBIA UNIV	D M BUTLER	HQ	K G HARRISON	NGT 00-030-081	5904
39	COLUMBIA UNIV	G ASRAR	HQ	R BELL	NGT 00-030-166	5906
39	CORNELL UNIV	E T ENGMAN	GSFC	W BRUTSAERT	NAG 5-1989	5959
39	CORNELL UNIV	M BALTUCK	HQ	B ISACKS	NAGW 2638	5986
39	CORNELL UNIV	C B PILCHER	HQ	J VEVERKA	NAGW 3320	5997
39	CORNELL UNIV	W LAU	GSFC	W BRUTSAET	NAS 5-31723	6003
39	CORNELL UNIV	D M BUTLER	HQ	R J QUALLS	NGT 00-030-065	6009
39	ST U OF NY-ALBANY	F G HALL	GSFC	D B FITZIARRALD	NAG 5-2242	6107
39	ST U NY-BINGHAMTON	G ASRAR	HQ	N S GOEL	NAGW 2699	6132
39	ST U OF NY-BUFFALO	F G HALL	GSFC	N GOEL	NAG 5-1627	6143
39	ST U NY-STONY BROOK	M J KURYLO	HQ	P VARANASI	NAGW 1238	6167
39	ST U NY-STONY BROOK	W LAU	GSFC	M GELLER	NAS 5-31720	6184
39	ST U NY-STONY BROOK	G ASRAR	HQ	A M WALLACE	NGT 00-030-146	6187

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39	SYRACUSE UNIV	G ASRAR	HQ	B J WILSEY	NGT 00-030-124	6208
39	DUKE UNIV	R H THOMAS	HQ	N L CHRISTENSEN	NAGW 2692	6235
39	DUKE UNIV	D M BUTLER	HQ	A E HARTLEY	NGT 00-030-069	6241
39	DUKE UNIV	D M BUTLER	HQ	A F CROSS	NGT 00-030-077	6242
39	DUKE UNIV	G ASRAR	HQ	W H SCHLESINGER	NGT 00-030-199	6243
39	NO CAROLINA A&T ST U	R L YANG	LARC	G A UZOUCHUKWU	NAG 1-1454	6260
39	NC ST U.-RALEIGH	M J KURYLO	HQ	N E BLAIR	NAGW 838	6296
39	NC ST U.-RALEIGH	G ASRAR	HQ	C C SPAUR	NGT 00-030-117	6324
39	UNIV NC-CHAPEL HILL	M J KURYLO	HQ	C S MARTENS	NAGW 834	6339
39	UNIV NC-CHAPEL HILL	D E WICKLAND	HQ	C S MARTENS	NAGW 1455	6340
39	UNIV NC-CHAPEL HILL	D E WICKLAND	HQ	C S MARTENS	NAGW 3681	6344
39	UNIV NC-CHAPEL HILL	D M BUTLER	HQ	D G BROWN	NGT 00-030-068	6345
39	UNIV NC-CHAPEL HILL	F C OWENS	HQ	C S MARTENS	NGT 00-050-656	6346
39	OHIO ST U	W B KRABILL	GSFC	K C JEZEK	NAG 5-684	6586
39	OHIO ST U	R H THOMAS	HQ	K JEZEK	NAGW 2644	6605
39	OHIO ST U	R H THOMAS	HQ	D H BROMWICH	NAGW 2718	6606
39	OHIO ST U	R H THOMAS	HQ	D H BROMWICH	NAGW 3677	6611
39	OHIO ST U	D M BUTLER	HQ	G CASASSA	NGT 00-030-053	6624
39	OHIO UNIV	B MARTIN	KSC	F C HAGERMAN	NGT 00-050-863	6643
39	OREGON ST U	E T ENGMAN	GSFC	R CUENCA	NAG 5-2013	6810
39	OREGON ST U	F G HALL	GSFC	L MAHRT	NAG 5-2300	6811
39	OREGON ST U	F G HALL	GSFC	D MARKS	NAG 5-2301	6812
39	OREGON ST U	D E WICKLAND	HQ	R H WARING	NAGW 1717	6816
39	OREGON ST U	D ADAMEC	HQ	P T STRUB	NAGW 2475	6822
39	OREGON ST U	M Y WEI	HQ	E C WEYINIRE	NAGW 2707	6823
39	OREGON ST U	D E WICKLAND	HQ	R H WARING	NAGW 3642	6832
39	OREGON ST U	D E WICKLAND	HQ	D O WALLIN	NAGW 3745	6836
39	OREGON ST U	G ASRAR	HQ	P SOLLINS	NGT 00-030-203	6847
39	OREGON ST U	F C OWENS	HQ	R WARING	NGT 00-050-520	6851
39	PA ST U.-UNIV. PARK	G ASRAR	HQ	T N CARLSON	NAGW 2647	7031
39	PA ST U.-UNIV. PARK	W KNOTT	KSC	D J COSGROVE	NAG10-39	7045
39	PA ST U.-UNIV. PARK	G ASRAR	HQ	A ALAM	NGT 00-030-024	7056
39	UNIV SOUTH CAROLINA	M R HELFERT	HQ	J JENSEN	NAGW 3169	7253
39	UNIV SOUTH CAROLINA	C	SSC	J R JENSEN	NAG13-27	7255
39	SO DAKOTA SCHL MINES	T BRAKE	GSFC	R WELCH	NAS 5-31718	7263
39	MIDDLE TENNESSEE ST U	M R HELFERT	HQ	O'FARRELL	NAGW 3170	7284
39	TEXAS A&M UNIV	G ASRAR	HQ	J B VALDES	NAGW 2427	7523
39	TEXAS A&M UNIV	M R HELFERT	HQ	J GIARDINO	NAGW 3186	7526
39	TEXAS A&M UNIV	G ASRAR	HQ	W M CHILDRESS	NGT 00-030-032	7539
39	U TX-ARLINGTON	D E WICKLAND	HQ	A K FUNG	NAGW 3091	7680
39	U TX-ARLINGTON	K J RANSON	HQ	D P GIBBS	NAGW 3421	7681
39	U TX-AUSTIN	H FREY	GSFC	B D TAPLEY	NAG 5-1118	7703
39	U TX-AUSTIN	A J ANDERSON	HQ	B TAPLEY	NAGW 2615	7752
39	U TX-AUSTIN	R E MURPHY	HQ	C R WILSON	NAGW 3131	7761
39	U TX-AUSTIN	D E WICKLAND	HQ	M M CRAWFORD	NAGW 3743	7765
39	U TX-AUSTIN	G SOFFE	GSFC	B SCHUTZ	NAS 5-33021	7768
39	U TX-AUSTIN	G ASRAR	HQ	V NUTH	NGT 00-030-001	7776
39	U TX-AUSTIN	G ASRAR	HQ	C PARMESEAN	NGT 00-030-158	7778
39	U TX-DALLAS	C J POLLOCK	MSFC	J H HOFFMAN	NAS 8-39692	7825
39	UNIV UTAH	F G HALL	GSFC	J EHRLINGER	NAG 5-2241	7871
39	UTAH ST U	E T ENGMAN	GSFC	C BINGHAM	NAG 5-2043	7887
39	UTAH ST U	M E MAIDEN	HQ	C M NEALE	NAGW 3221	7894
39	WEBER STATE COLLEGE	F SIX	MSFC	D M VAUGHN	NAG 8-214	7904
39	CHRISTOPHER NWPORT C	D E WICKLAND	HQ	G J WHITING	NAGW 3736	7919
39	UNIV VIRGINIA	D L WILLIAMS	GSFC	H H SHUGART	NAG 5-1018	8089
39	UNIV VIRGINIA	STOCKEY	GSFC	M GARSTANG	NAG 5-1961	8094
39	UNIV VIRGINIA	F G HALL	GSFC	H H SHUGART	NAG 5-2295	8098
39	UNIV VIRGINIA	G ASRAR	HQ	J F WEISHAMPEL	NGT 00-030-028	8123
39	UNIV VIRGINIA	G ASRAR	HQ	M A LEFSKY	NGT 00-030-157	8124
39	UNIV VIRGINIA	F C OWENS	HQ	H H SHUGART	NGT 00-050-648	8129

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39	UNIV VIRGINIA	F C OWENS	HQ	M GARSTANG	NGT 00-050-722	8131
39	UNIV VIRGINIA	F C OWENS	HQ	A L MILLS	NGT 00-050-750	8133
39	NORTHWEST INDIAN COL	A HATCH	ARC	R LORENCE	NAGW 3622	8274
39	UNIV WASHINGTON	D W DEERING	GSFC	L J FRITSCHEN	NAG 5-901	8294
39	UNIV WASHINGTON	F G HALL	GSFC	D P LETTENMAIER	NAG 5-2294	8306
39	UNIV WASHINGTON	M J KURYLO	HQ	P D QUAY	NAGW 844	8321
39	UNIV WASHINGTON	M BALTUCK	HQ	A R GILLESPIE	NAGW 1317	8326
39	UNIV WASHINGTON	G ASRAR	HQ	D P LETTERMAIER	NAGW 2556	8345
39	UNIV WASHINGTON	R E MURPHY	HQ	J E RICHEY	NAGW 2652	8349
39	UNIV WASHINGTON	D F WICKLAND	HQ	J B ADAMS	NAGW 3195	8359
39	UNIV WASHINGTON	T HAMILTON	GSFC	W J PLANT	NAS 5-31736	8382
39	UNIV WASHINGTON	G ASRAR	HQ	A P BARROS	NGT 00-030-019	8391
39	UNIV WASHINGTON	G ASRAR	HQ	L J CARLSON	NGT 00-030-116	8404
39	UNIV WISC-MADISON	P J WETZEL	GSFC	E W ELORANTA	NAG 5-902	8512
39	UNIV WISC-MADISON	A ARKING	GSFC	D R JOHNSON	NAG 5-1330	8513
39	UNIV WISC-MADISON	G ASRAR	HQ	W H RAYMOND	NAGW 1855	8557
39	UNIV WISC-MADISON	G ASRAR	HQ	J M NORMAN	NAGW 2536	8566
39	UNIV WISC-MADISON	A C JANETOS	HQ	W P MENZEL	NAGW 2751	8568
39	UNIV WISC-MADISON	J C DODGE	HQ	W P MENZEL	NAGW 2973	8576
39	UNIV WISC-MADISON	G ASRAR	HQ	J M NORMAN	NAGW 3038	8578
39	UNIV WISC-MADISON	D E WICKLAND	HQ	E W ELORANTA	NAGW 3708	8584
39	UNIV WISC-MADISON	D M BUTLER	HQ	W L SMITH	NAGW 3732	8585
39	UNIV WISC-MADISON	E KREINS	GSFC	W L SMITH	NAS 5-31377	8597
39	UNIV WISC-MADISON	G SOFFEN	GSFC	C BENTLEY	NAS 5-33015	8598
39	UNIV WISC-MADISON	G ASRAR	HQ	T M LILLESAND	NGT 00-030-034	8608
39	UNIV WISC-MILWAUKEE	G ASRAR	HQ	K H NEALSON	NGT 00-030-003	8624
39	UNIV WYOMING	M OWE	GSFC	R D KELLY	NAG 5-913	8629
39	UNIV WYOMING	F G HALL	GSFC	R D KELLY	NAG 5-2240	8631
39	UNIV WYOMING	R H THOMAS	HQ	T R PARISH	NAGW 2666	8638
39	UNIV PUERTO RICO	A T JOYCE	SSC	N FLETCHER	NAG13-18	8645
39	UNIV PUERTO RICO	A JOYCE	SSC	A D CRUZ	NGT 00-070-239	8646
39	U PUERTO RICO-MAYAGZ	A T JOYCE	SSC	L L RODRIGUEZ	NAG13-17	8651
41	AUBURN UNIV	W R WATSON	LARC	M J CROCKER	NAG 1-1467	1024
41	AUBURN UNIV	C LAWRENCE	LERC	G T FLOWERS	NAG 3-1507	1028
41	AUBURN UNIV	C C RUPP	MSFC	M E GREENE	NAG 8-808	1032
41	UNIV ALA-HUNTSVILLE	F SIX	MSFC	G R KARR	NAG 8-212	1100
41	UNIV ALA-HUNTSVILLE	D CARTER	MSFC	F ROSENBERGER	NAG 8-950	1121
41	UNIV ALA-HUNTSVILLE	R L WRIGHT	LARC	J A BIJVOET	NAS 1-19417	1143
41	ARIZONA ST U	J R DAGENHART	LARC	W S SARIC	NAG 1-937	1250
41	ARIZONA ST U	T B GATSKI	LARC	R SO	NAG 1-1080	1251
41	ARIZONA ST U	D M BUSHNELL	LARC	W S SARIC	NAG 1-1111	1253
41	ARIZONA ST U	C L STREETT	LARC	H L REED	NAG 1-1158	1255
41	ARIZONA ST U	I M GREGORY	LARC	D K SCHMIDT	NAG 1-1341	1257
41	ARIZONA ST U	T B GATSKI	LARC	R M SO	NAG 1-1399	1258
41	ARIZONA ST U	J F MADDEN	ARC	A CHATTOPADHYAY	NAG 2-771	1259
41	ARIZONA ST U	Y H YU	ARC	V WELLS	NAG 2-844	1260
41	ARIZONA ST U	R E BULLARD	LERC	D K SCHMIDT	NAG 3-998	1261
41	ARIZONA ST U	D J KOGA	ARC	W SARIC	NCA 2-745	1307
41	ARIZONA ST U	T A EDWARDS	ARC	A CHATTOPADHYAY	NCA 2-778	1308
41	ARIZONA ST U	S S DAVIS	ARC	W S SARIC	NCC 2-659	1311
41	ARIZONA ST U	J F MADDEN	ARC	A CHATTOPADHYAY	NCC 2-795	1312
41	UNIV OF ARIZONA	T B GATSKI	LARC	E J KERSCHEN	NAG 1-1135	1325
41	UNIV OF ARIZONA	C L STREETT	LARC	H F FASEL	NAG 1-1422	1326
41	UNIV OF ARIZONA	S DAVIS	ARC	K Y FUNG	NAG 2-847	1336
41	UNIV OF ARIZONA	J F GROENEWEG	LERC	E J KERSCHEN	NAG 3-357	1337
41	UNIV OF ARIZONA	J H MILES	LERC	T Balsa	NAG 3-781	1338
41	UNIV OF ARIZONA	M E GOLDSTEIN	LERC	K FUNG	NAG 3-1436	1342
41	UNIV OF ARIZONA	D HUFF	LERC	E KERSCHEN	NAG 3-1442	1343
41	UNIV OF ARIZONA	L S HULTGREEN	LERC	E J KERSCHEN	NAG 3-1524	1346
41	UNIV OF ARIZONA	T D SWANSON	GSFC	K R SRIDHAR	NAG 5-1572	1355

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41	UNIV OF ARIZONA	M M JUROTICH	GSFC	R L THOMPSON	NAS 5-31289	1507
41	UNIV OF ARIZONA	S DAVIS	ARC	K Y FUNG	NCA 2-709	1513
41	UNIV OF ARIZONA	R E BACH	ARC	E K PARKS	NCC 2-329	1516
41	CALIF INST OF TECH	J B ANDERS	LARC	F E MARBLE	NAG 1-842	1570
41	CALIF INST OF TECH	T S GATES	LARC	W G KNAUSS	NAG 1-1203	1571
41	CALIF INST OF TECH	R C ROGERS	LARC	H G HORNUNG	NAG 1-1209	1572
41	CALIF INST OF TECH	D J KOGA	ARC	H G HORNUNG	NAG 2-621	1574
41	CALIF INST OF TECH	R M HICKS	ARC	F E CULICK	NAG 2-732	1575
41	CALIF INST OF TECH	M J BRENNER	ARC	J C DOYLE	NAG 2-792	1578
41	CALIF INST OF TECH	J H STARNES	LARC	W G KNAUSS	NSG-1483	1705
41	CAL POLY ST U-S LUIS	J J SAMUELS	ARC	D SANDLIN	NAG 2-743	1706
41	CAL POLY ST U-S LUIS	J V BOWLES	ARC	D R SANDLIN	NAG 2-766	1707
41	CAL POLY ST U-S LUIS	R J RAY	ARC	T W CARPENTER	NAG 2-778	1708
41	CAL POLY ST U-S LUIS	L B SCHIFF	ARC	R M CUMMINGS	NCA 2-626	1710
41	CAL POLY ST U-S LUIS	M W KEHOE	ARC	F A KOLKAILAH	NCA 2-649	1711
41	CAL POLY ST U-S LUIS	M W KEHOE	ARC	F A KOLKAILAH	NCA 2-694	1712
41	CAL POLY ST U-S LUIS	C TUNG	ARC	J TSO	NCA 2-722	1713
41	CAL POLY ST U-S LUIS	M W KEHOE	ARC	F A KOLKAILAH	NCA 2-779	1714
41	CAL POLY ST U-S LUIS	K MCALISTER	ARC	J TSO	NCA 2-811	1715
41	CAL POLY ST U-S LUIS	P T SODERMAN	ARC	J TSO	NCA 2-816	1716
41	CAL POLY ST U-S LUIS	C TUNG	ARC	J TSO	NCA 2-836	1717
41	CAL POLY ST U-S LUIS	J C ROSS	ARC	R M CUMMINGS	NCC 2-684	1718
41	CAL POLY ST U-S LUIS	F A ZUNIGA	ARC	D R SANDLIN	NCC 2-701	1719
41	CAL POLY ST U-S LUIS	G B GILYARD	ARC	D J BIEZAD	NCC 2-711	1720
41	CAL POLY ST U-S LUIS	J C ROSS	ARC	J TSO	NCC 2-730	1721
41	CAL POLY ST U-S LUIS	R J MARGASON	ARC	J TSO	NCC 2-731	1722
41	CAL POLY ST U-S LUIS	A H BOWERS	ARC	T W CARPENTER	NCC 2-748	1724
41	CAL POLY ST U-S LUIS	M B TISCHLER	ARC	D BIEZAD	NCC 2-751	1725
41	CAL POLY ST U-S LUIS	J FLORES	ARC	R CUMMINGS	NCC 2-754	1726
41	CAL POLY ST U-S LUIS	J C ROSS	ARC	R M CUMMINGS	NCC 2-761	1727
41	CAL POLY ST U-S LUIS	H N SWENSON	ARC	D J BIEZAD	NCC 2-775	1728
41	CAL POLY ST U-S LUIS	G C HILL	ARC	D J BEIZAD	NCC 2-800	1729
41	CAL POLY ST U-S LUIS	J R ROSS	ARC	R M CUMMINGS	NCC 2-813	1730
41	CAL POLY ST U-S LUIS	F C OWENS	HQ	R M COMMINGS	NGT 00-070-228	1731
41	CAL ST U-LG BEACH	P KUTLER	ARC	T CEBECI	NAG 2-726	1740
41	CAL ST U-LG BEACH	C S BIDWELL	LERC	T CEBECI	NAG 3-1050	1741
41	CAL ST U-LOS ANGELES	R A WAHLS	LARC	C C WU	NCC 1-174	1744
41	CAL ST U-NORTHRIDGE	K GUPTA	ARC	P K RUSSELL	NCA 2-790	1750
41	CAL ST U-NORTHRIDGE	A H BOWERS	ARC	S D SCHWARTZ	NCC 2-821	1752
41	SAN DIEGO STATE U	J ROSS	ARC	J KATZ	NCA 2-786	1780
41	SAN DIEGO STATE U	J C ROSS	ARC	J KATZ	NCC 2-596	1781
41	SAN JOSE ST U	T J DAVIS	ARC	W F NEDELL	NAG 2-537	1797
41	SAN JOSE ST U	R A KENNELLY	ARC	R V WESTPHAL	NCA 2-677	1812
41	SAN JOSE ST U	D RIDDLE	ARC	N MOURTOS	NCA 2-683	1813
41	SAN JOSE ST U	R A KENNELLY JR.	ARC	R V WESTPHAL	NCA 2-809	1823
41	SAN JOSE ST U	G S DEIWERT	ARC	A A BORJA	NCC 2-430	1834
41	SANTA CLARA UNIV	B SRIDHAR	ARC	P K MENON	NCC 2-793	1859
41	STANFORD UNIV	J L ROGERS	LARC	I KROO	NAG 1-1052	1865
41	STANFORD UNIV	J SOBIESKI	LARC	I M KROO	NAG 1-1494	1866
41	STANFORD UNIV	H MIURA	ARC	I KROO	NAG 2-640	1870
41	STANFORD UNIV	T A LASINSKI	ARC	L HESSELINK	NAG 2-701	1873
41	STANFORD UNIV	T J GREGORY	ARC	I KROO	NAG 2-759	1875
41	STANFORD UNIV	P J OUZTS	LERC	S M ROCK	NAG 3-1177	1878
41	STANFORD UNIV	D VITAGLIANO	GSFC	J G TIMOTHY	NAS 5-29389	1924
41	STANFORD UNIV	D KWAK	ARC	I D CHANG	NCA 2-431	1930
41	STANFORD UNIV	S P SHARMA	ARC	D BERSHADER	NCA 2-494	1933
41	STANFORD UNIV	L B SCHIFF	ARC	L HESSELINK	NCA 2-578	1940
41	STANFORD UNIV	V WATSON	ARC	L HESSELINK	NCA 2-579	1941
41	STANFORD UNIV	J A SCHROEDER	ARC	S M ROCK	NCA 2-594	1942
41	STANFORD UNIV	G S DEIWERT	ARC	R W MACCORMACK	NCA 2-595	1943

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41	STANFORD UNIV	J A CAVOLOWSKY	ARC	R K HANSON	NCA 2-607	1944
41	STANFORD UNIV	G ZILLIAC	ARC	P BRADSHAW	NCA 2-631	1945
41	STANFORD UNIV	L SCHIFF	ARC	L HESSELINK	NCA 2-632	1946
41	STANFORD UNIV	S P SHARMA	ARC	D BERSHADER	NCA 2-638	1947
41	STANFORD UNIV	W J FEIEREISEN	ARC	D BAGANOFF	NCA 2-693	1954
41	STANFORD UNIV	W J FEIEREISEN	ARC	D BAGANOFF	NCA 2-700	1955
41	STANFORD UNIV	S P SHARMA	ARC	D BERSHADER	NCA 2-723	1958
41	STANFORD UNIV	T H PULLIAM	ARC	R W MACCORMACK	NCA 2-752	1960
41	STANFORD UNIV	L SCHIFF	ARC	L HESSELINK	NCA 2-765	1962
41	STANFORD UNIV	A VAZIRI	ARC	L HESSELINK	NCA 2-781	1965
41	STANFORD UNIV	J D PHILLIPS	ARC	I KROO	NCA 2-805	1967
41	STANFORD UNIV	D C REDA	ARC	R J MOFFAT	NCA 2-807	1968
41	STANFORD UNIV	S P SHARMA	ARC	D BERSHADER	NCA 2-812	1970
41	STANFORD UNIV	J A CAVOLOWSKY	ARC	R K HANSON	NCA 2-828	1971
41	STANFORD UNIV	J A CAVOLOWSKY	ARC	R K HANSON	NCA 2-829	1972
41	STANFORD UNIV	P GOORJIAN	ARC	R W MACCORMACK	NCA 2-830	1973
41	STANFORD UNIV	C A SMITH	ARC	L ROBERTS	NCC 2-55	1974
41	STANFORD UNIV	M D MADSON	ARC	I M KROO	NCC 2-683	1982
41	STANFORD UNIV	D A JOHNSON	ARC	J EATON	NCC 2-5001	1987
41	STANFORD UNIV	C TUNG	ARC	D BERSHADER	NCC 2-5002	1988
41	STANFORD UNIV	R V DOGGETT JR	LARC	H ASHLEY	NGL 5-20243	1989
41	STANFORD UNIV	F C OWENS	HQ	A E BRYSON	NGT 00-050-359	1996
41	STANFORD UNIV	M MOORE	ARC	G M HOMSY	NGT 00-050-747	2003
41	STANFORD UNIV	S GOLDSTEIN	JSC	R H CANNON	NGT 00-051-056	2011
41	STANFORD UNIV	F C OWENS	HQ	R W MACCORMACK	NGT 00-070-078	2012
41	STANFORD UNIV	F C OWENS	HQ	P M BANKS	NGT 00-070-116	2013
41	STANFORD UNIV	F C OWENS	HQ	L ROBERTS	NGT 00-070-180	2015
41	STANFORD UNIV	M MOORE	ARC	B CANTWELL	NGT 00-070-277	2023
41	STANFORD UNIV	D K RUSSELL	HQ	D BERSHADER	NGT 00-070-330	2025
41	STANFORD UNIV	D K RUSSELL	HQ	O KHATIB	NGT 00-070-348	2029
41	UNIV CALIF-BERKELEY	B T UPCHURCH	LARC	F C HURLBUT	NAG 1-879	2039
41	UNIV CALIF-BERKELEY	C T BENNETT	ARC	M S BANKS	NAG 2-652	2046
41	UNIV CALIF-BERKELEY	R ALEMAN	GSFC	C W CARLSON	NAS 5-31283	2154
41	UNIV CALIF-BERKELEY	R DONNELLY	GSFC	S KAHN	NAS 5-31429	2155
41	UNIV CALIF-BERKELEY	G S DEIWERT	ARC	F C HURLBUT	NCA 2-515	2161
41	UNIV CALIF-BERKELEY	G S DEIWERT	ARC	M HOLT	NCA 2-635	2163
41	UNIV CALIF-BERKELEY	G S DEIWERT	ARC	F C HURLBUT	NCA 2-703	2166
41	UNIV CALIF-BERKELEY	G S DEIWERT	ARC	F C HURLBUT	NCA 2-757	2168
41	UNIV CALIF-BERKELEY	T HOLST	ARC	M HOLT	NCA 2-782	2170
41	UNIV CALIF-DAVIS	C L STREETT	LARC	M M HAFEZ	NAG 1-1178	2215
41	UNIV CALIF-DAVIS	R S BRAY	ARC	R A HESS	NAG 2-482	2216
41	UNIV CALIF-DAVIS	D T BERRY	ARC	R A HESS	NAG 2-654	2220
41	UNIV CALIF-DAVIS	GOORJIAN	ARC	M M HAFEZ	NCA 2-563	2243
41	UNIV CALIF-DAVIS	P GOORJIAN	ARC	M M HAFEZ	NCA 2-565	2244
41	UNIV CALIF-DAVIS	P GOORJIAN	ARC	C P VAN DAM	NCA 2-568	2245
41	UNIV CALIF-DAVIS	P GOORJIAN	ARC	J J CHATTOT	NCA 2-572	2246
41	UNIV CALIF-DAVIS	T EDWARDS	ARC	C P VAN DAM	NCA 2-581	2247
41	UNIV CALIF-DAVIS	M L MERRIAM	ARC	J J CHATTOT	NCA 2-627	2248
41	UNIV CALIF-DAVIS	M L MERRIAM	ARC	J J CHATTOT	NCA 2-628	2249
41	UNIV CALIF-DAVIS	R M HICKS	ARC	M HAFEZ	NCA 2-644	2250
41	UNIV CALIF-DAVIS	R L SORENSON	ARC	M M HAFEZ	NCA 2-655	2251
41	UNIV CALIF-DAVIS	P BUNING	ARC	J CHATTOT	NCA 2-670	2253
41	UNIV CALIF-DAVIS	D M DRIVER	ARC	B R WHITE	NCA 2-676	2254
41	UNIV CALIF-DAVIS	W VAN DALSEM	ARC	M HAFEZ	NCA 2-682	2255
41	UNIV CALIF-DAVIS	B SMITH	ARC	B R WHITE	NCA 2-728	2257
41	UNIV CALIF-DAVIS	P GELHAUSEN	ARC	M HAFEZ	NCA 2-760	2259
41	UNIV CALIF-DAVIS	P GOORJIAN	ARC	J J CHATTOT	NCA 2-774	2260
41	UNIV CALIF-DAVIS	P GOORJIAN	ARC	C P VAN DAM	NCA 2-775	2261
41	UNIV CALIF-DAVIS	P GOORJIAN	ARC	M HAFEZ	NCA 2-776	2262
41	UNIV CALIF-DAVIS	E P DUQUE	ARC	M HAFEZ	NCA 2-789	2264

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41	UNIV CALIF-DAVIS	F X CARADONNA	ARC	J J CHATTOT	NCA 2-837	2266
41	UNIV CALIF-DAVIS	L P YIP	LARC	C P VAN DAM	NCC 1-163	2267
41	UNIV CALIF-DAVIS	M B TISCHLER	ARC	R A HESS	NCC 2-624	2269
41	UNIV CALIF-IRVINE	J D HOLDEMAN	LERC	G S SAMUELSEN	NAG 3-1110	2288
41	UNIV CALIF-IRVINE	R R TALINA	LERC	G S SAMUELSEN	NAG 3-1124	2289
41	UNIV CAL-LOS ANGELES	H M ADELMAN	LARC	P P FRIEDMANN	NAG 1-833	2316
41	UNIV CAL-LOS ANGELES	T B GATSKI	LARC	H O KREISS	NAG 1-1428	2321
41	UNIV CAL-LOS ANGELES	S A JACKLIN	ARC	P FRIEDMANN	NAG 2-477	2323
41	UNIV CAL-LOS ANGELES	M J RUTKOWSKI	ARC	P P FRIEDMAN	NAG 2-835	2331
41	UNIV CAL-LOS ANGELES	F C OWENS	HQ	P P FRIEDMANN	NGT 00-050-444	2449
41	UNIV CAL-LOS ANGELES	M MOORE	ARC	P P FRIEDMAN	NGT 00-051-173	2455
41	UNIV CAL-LOS ANGELES	P SODERMAN	ARC	W C MEECHAM	NSG-2290	2458
41	UNIV CAL-SAN DIEGO	T B GATSKI	LARC	P A LIBBY	NAG 1-1193	2472
41	UNIV CAL-SAN DIEGO	R C LAKE	LARC	J B KOSMATKA	NAG 1-1445	2474
41	UNIV CAL-SAN DIEGO	J DRUMMOND	LARC	S SARKAR	NAG 1-1516	2475
41	UNIV CAL-SAN DIEGO	W E ZORUMSKI	LARC	S SARKAR	NAG 1-1535	2476
41	UNIV CAL-SAN DIEGO	K S HAMADE	ARC	F SEIBLE	NCC 2-712	2581
41	U CAL-SANTA BARBARA	J H STARNES	LARC	K T KEDWARD	NAG 1-1376	2619
41	UNIV SOUTHERN CALIF	J M SEINER	LARC	S SHRECK	NAG 1-1096	2704
41	COLORADO ST U	R J GUNDERMAN	LERC	V N BRINGI	NAS 3-26410	2774
41	UNIV COL-BOULDER	W E ZORUMSKI	LARC	S BIRONGEN	NAG 1-1103	2792
41	UNIV COL-BOULDER	C L STREETT	LARC	S BIRINGEN	NAG 1-1161	2793
41	UNIV COL-BOULDER	W J SMALL	LARC	A R SEEBASS	NAG 1-1295	2795
41	UNIV COL-BOULDER	W E ZORUMSKI	LARC	S BIRINGEN	NAG 1-1472	2800
41	UNIV COL-BOULDER	T A LASINSKI	ARC	C FARHAT	NAG 2-827	2809
41	UNIV COL-BOULDER	C C CHAMIS	LERC	C A FELIPPA	NAG 3-934	2812
41	UNIV COL-BOULDER	C C CHAMIS	LERC	C FILIPPA	NAG 3-1425	2822
41	UNIV COL-BOULDER	D KESSLER	JSC	R CULP	NAG 9-407	2892
41	UNIV COL-BOULDER	K W OGILVIE	GSFC	G LAWRENCE	NAS 5-33042	2997
41	UNIV COL-BOULDER	M W STORTZ	ARC	C Y CHOW	NCC 2-714	3006
41	UNIV COL-BOULDER	M S LIU	LERC	C Y CHOW	NCC 3-168	3007
41	UNIV COL-BOULDER	F C OWENS	HQ	G W ROSBOROUGH	NGT 00-050-329	3027
41	UNIV COL-BOULDER	F C OWENS	HQ	G H BORN	NGT 00-050-336	3028
41	UNIV COL-BOULDER	F C OWENS	HQ	R CHASE	NGT 00-050-678	3038
41	UNIV COL-BOULDER	F C OWENS	HQ	G H BORN	NGT 00-050-692	3039
41	UNIV COL-BOULDER	S GOLDSTEIN	JSC	R CULP	NGT 00-050-872	3046
41	UNIV COL-BOULDER	H ASHKENAS	JPL	G H BAM	NGT 00-050-887	3047
41	UNIV COL-BOULDER	F SIX	MSFC	L D PETERSON	NGT 00-050-954	3054
41	UNIV COL-BOULDER	E PRIOR	LARC	S BIRINGEN	NGT 00-050-985	3057
41	UNIV COL-BOULDER	G SOFFEN	GSFC	D E SMITH	NGT 00-051-034	3058
41	UNIV COL-BOULDER	C HIX	JPL	R R LEBEN	NGT 00-051-040	3059
41	UNIV COL-BOULDER	G LESANE	HQ	R LEBEN	NGT 00-051-128	3061
41	UNIV COL-BOULDER	G LESANE	HQ	G BORN	NGT 00-051-141	3063
41	UNIV COL-BOULDER	B SWINFORD	MSFC	J N KOSTER	NGT 00-051-179	3064
41	UNIV COL-BOULDER	F C OWENS	HQ	M W LUTTGES	NGT 00-070-089	3065
41	UNIV COL-BOULDER	F C OWENS	HQ	M W LUTTGES	NGT 00-070-242	3067
41	UNIV COL-BOULDER	D K RUSSELL	HQ	G W ROSBOROUGH	NGT 00-070-266	3068
41	UNIV COL-DENVER	R D JOSLIN	LARC	C LIU	NAG 1-1537	3076
41	UNIV CONNECTICUT	J GOODRICH	LERC	P HANLEY	NAG 3-1280	3103
41	UNIV CONNECTICUT	L REID	LERC	P HANLEY	NAG 3-1348	3104
41	YALE UNIV	A KUMAR	LARC	K R SREENIVASAN	NAG 1-1034	3112
41	UNIV DELAWARE	J P GYEKENYESI	LERC	T W CHOU	NAS 3-25791	3158
41	GEORGE WASHINGTON U	C K DRUMMOND	LERC	C A GARRIS	NAG 3-860	3175
41	GEORGE WASHINGTON U	H C NEEDLEMAN	GSFC	F BAGINSKI	NAG 5-697	3177
41	GEORGE WASHINGTON U	S E MASSENBERG	LARC	B E WOLFSON	NAS 1-18458	3184
41	GEORGE WASHINGTON U	R L YANG	LARC		NAS 1-19699	3185
41	GEORGE WASHINGTON U	L R CLARK	LARC	H LIEBOWITZ	NCC 1-14	3188
41	GEORGE WASHINGTON U	R T BRIGHT	LARC	H LIEBOWITZ	NCC 1-24	3189
41	GEORGE WASHINGTON U	P C MURPHY	LARC	H LIEBOWITZ	NCC 1-29	3190
41	GEORGE WASHINGTON U	R L YANG	LARC	J L WHITESIDES	NCC 1-47	3191

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FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
41	EMBRY-RIDDLE AERO U	L CREDEUR	LARC	G W LOHR	NCC 1-66	3244
41	FLORIDA A&M UNIV	M G MACARAEG	LARC	C K TAM	NAG 1-1372	3252
41	FLORIDA ATLANTIC U	J W POSEY	LARC	S A GLEGG	NAG 1-1202	3263
41	FLORIDA ATLANTIC U	J H STARNES	LARC	I ELISHAKOFF	NAG 1-1310	3264
41	FLORIDA ATLANTIC U	R A ORMISTON	ARC	G H GAONKAR	NAG 2-727	3265
41	FLORIDA ATLANTIC U	R A ORMISTON	ARC	G H GAONKAR	NAG 2-797	3266
41	FLORIDA ATLANTIC U	T H GUO	LERC	A DUYAR	NAG 3-1324	3270
41	FLORIDA INST OF TECH	M J WALSH	LARC	C S SUBRAMANIAN	NAG 1-1541	3280
41	FLORIDA ST U	R A GOLUB	LARC	C K TAM	NAG 1-421	3292
41	FLORIDA ST U	T A ZANG	LARC	D A KOPRIVA	NAG 1-862	3293
41	FLORIDA ST U	J M SEINER	LARC	A KROTHAPALLI	NAG 1-1497	3295
41	FLORIDA ST U	D L HUFF	LERC	K W TAM	NAG 3-1267	3297
41	UNIV OF CENTRAL FLA	S K ROBINSON	LARC	L CHEW	NAG 1-1402	3341
41	UNIV OF CENTRAL FLA	W LARSEN	ARC	R V ROGERS	NAG 2-625	3343
41	UNIV OF CENTRAL FLA	T S BARTH	KSC	W W SWART	NAG10-101	3348
41	UNIV OF CENTRAL FLA	J JONES	KSC	L A ANDERSON	NAG10-103	3349
41	UNIV FLORIDA	W L SELLERS	LARC	B F CARROL	NAG 1-1486	3374
41	UNIV FLORIDA	L A BURKARDT	LERC	V P ROAN	NAG 3-1187	3379
41	UNIV FLORIDA	K TUCKER	MSFC	W SHYY	NAG 8-177	3384
41	GEORGIA INST OF TECH	W T SUIT	LARC	A J CAZISE	NAG 1-939	3479
41	GEORGIA INST OF TECH	R G KVATERNIK	LARC	S HANAGUD	NAG 1-1007	3480
41	GEORGIA INST OF TECH	R G KVATERNIK	LARC	D A PETERS	NAG 1-1027	3481
41	GEORGIA INST OF TECH	H E HINNANT	LARC	D H HODGES	NAG 1-1094	3482
41	GEORGIA INST OF TECH	W T SUIT	LERC	A J CALISE	NAG 1-1139	3483
41	GEORGIA INST OF TECH	J D SHAUGHNESSY	LARC	G A FLANDRO	NAG 1-1205	3484
41	GEORGIA INST OF TECH	J B MALONE	LARC	L N SANKAR	NAG 1-1217	3486
41	GEORGIA INST OF TECH	J D MCMINN	LARC	A J CALISE	NAG 1-1451	3494
41	GEORGIA INST OF TECH	E G WAGGONER	LARC	R J ENGLAR	NAG 1-1517	3495
41	GEORGIA INST OF TECH	R M HICKS	ARC	R J ENGLAR	NAG 2-622	3496
41	GEORGIA INST OF TECH	T L HOST	ARC	L N SANKAR	NAG 2-869	3500
41	GEORGIA INST OF TECH	D C JANETZKE	LERC	M KAMAT	NAG 3-895	3502
41	GEORGIA INST OF TECH	E KREJSA	LERC	K K AHUJA	NAG 3-1066	3504
41	GEORGIA INST OF TECH	R D MOORE	LERC	W A BELL	NAG 3-1215	3505
41	GEORGIA INST OF TECH	L R CLARK	LARC	K AHUJA	NAS 1-19061	3530
41	GEORGIA INST OF TECH	A ATENCIO	ARC	J V PRASAD	NCA 2-512	3533
41	GEORGIA INST OF TECH	C TUNG	ARC	J C WU	NCA 2-690	3535
41	GEORGIA INST OF TECH	C TUNG	ARC	J C WU	NCA 2-747	3536
41	GEORGIA INST OF TECH	A ATENCIO	ARC	J V PRASAD	NCA 2-761	3537
41	GEORGIA INST OF TECH	T GALLOWAY	ARC	D P SCHRAGE	NCA 2-771	3538
41	GEORGIA INST OF TECH	V H CHENG	ARC	P K MENON	NCC 2-575	3540
41	GEORGIA INST OF TECH	J T LYNCH	HQ	D SCHRAGE	NGT 00-051-101	3558
41	GEORGIA INST OF TECH	D K RUSSELL	HQ	H STALFORD	NGT 00-070-315	3565
41	UNIV IDAHO	D V GALLAWAY	HQ	D H ATKINSON	NGT 00-010-003	3719
41	ILL INST OF TECH	M J WALSH	LARC	C E WARK	NAG 1-1532	3723
41	ILL INST OF TECH	R R MANKBADI	LERC	T C CORKE	NAG 3-1519	3724
41	ILL INST OF TECH	S P WILKINSON	LARC	T C CORKE	NCC 1-167	3725
41	NORTHWESTERN UNIV	C C CHAMIS	LERC	I M DANIEL	NAG 3-950	3738
41	NORTHWESTERN UNIV	P GOORJIAN	ARC	A TAFLOVE	NCA 2-562	3763
41	NORTHWESTERN UNIV	P GOORJIAN	ARC	A TAFLOVE	NCA 2-772	3765
41	NORTHWESTERN UNIV	P GOORJIAN	ARC	A TAFLOVE	NCA 2-773	3766
41	UNIV ILLINOIS URBANA	M J WALSH	LARC	R J ADRIAN	NAG 1-1530	3882
41	UNIV ILLINOIS URBANA	J D HOLDEMAN	LERC	S P VANKA	NAG 3-1026	3894
41	UNIV ILLINOIS URBANA	M G POTAPCZUK	LERC	M B BRAGG	NAG 3-1134	3897
41	UNIV ILLINOIS URBANA	Y K CHOO	LERC	K D LEE	NAG 3-1148	3898
41	UNIV ILLINOIS URBANA	D KWAK	ARC	K D LEE	NCA 2-742	3941
41	UNIV ILLINOIS URBANA	S E ROGERS	ARC	K D LEE	NCA 2-833	3942
41	UNIV ILLINOIS URBANA	F C OWENS	HQ	R A BEDDINI	NGT 00-050-363	3950
41	UNIV ILLINOIS URBANA	F C OWENS	HQ	R L BURTON	NGT 00-050-840	3953
41	UNIV ILLINOIS URBANA	F MONTEGANI	LERC	M B BRAGG	NGT 00-051-051	3956
41	PURDUE UNIV	R J SILCOX	LARC	R J BERNHARD	NAG 1-58	3989



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41	PURDUE UNIV	R C SCOTT	LARC	T A WEISSHAAR	NAG 1-157	3990
41	PURDUE UNIV	J W EDWARDS	LARC	H T YANG	NAG 1-372	3991
41	PURDUE UNIV	T OWENS	LARC	S P SCHNEIDER	NAG 1-1133	3993
41	PURDUE UNIV	S A RIZZI	LARC	J F DOYLE	NAG 1-1173	3994
41	PURDUE UNIV	D L GRAY	LARC	S P SCHNEIDER	NAG 1-1201	3995
41	PURDUE UNIV	G B NORTHAM	LARC	S N MURPHY	NAG 1-1258	3996
41	PURDUE UNIV	T S GATES	LARC	C T SUN	NAG 1-1366	4000
41	PURDUE UNIV	T B GATSKI	LARC	A BLAISDELL	NAG 1-1509	4002
41	PURDUE UNIV	S A RIZZI	LARC	J F DOYLE	NAG 1-1526	4003
41	PURDUE UNIV	L L ERICKSON	ARC	J P SULLIVAN	NAG 2-854	4004
41	PURDUE UNIV	R J STEINKE	LERC	S N MURTHY	NAG 3-481	4005
41	PURDUE UNIV	G L STEFKO	LERC	M H WILLIAMS	NAG 3-499	4006
41	PURDUE UNIV	D HOYNIK	LERC	P S FLEETER	NAG 3-656	4008
41	PURDUE UNIV	F A NEWMAN	LERC	S FLEETER	NAG 3-825	4009
41	PURDUE UNIV	J D HOLDEMAN	LERC	J P SULLIVAN	NAG 3-943	4010
41	PURDUE UNIV	D P MILLER	LERC	W J USAB	NAG 3-1127	4012
41	PURDUE UNIV	L F SCHUMANN	LERC	S FLEETER	NAG 3-1207	4013
41	PURDUE UNIV	D N BOWDITCH	LERC	S N MURTHY	NAG 3-1291	4015
41	PURDUE UNIV	F C OWENS	HQ	H T YANG	NGT 00-050-406	4049
41	PURDUE UNIV	C HIX	JPL	J M LONGUSKI	NGT 00-051-129	4062
41	PURDUE UNIV	D K RUSSELL	HQ	R SKELTON	NGT 00-070-313	4065
41	UNIV NOTRE DAME	J F GROENEWEG	LERC	H M ATASSI	NAG 3-732	4072
41	UNIV NOTRE DAME	M E GOLDSTEIN	LERC	H M ATASSI	NAG 3-1294	4073
41	UNIV NOTRE DAME	D FISHER	ARC	R C NELSON	NCA 2-513	4078
41	UNIV NOTRE DAME	L B SCHIFF	ARC	A S ARENA	NCA 2-621	4080
41	UNIV NOTRE DAME	L VERNON	ARC	P F DUNN	NCA 2-711	4081
41	UNIV NOTRE DAME	D FISHER	ARC	R C NELSON	NCA 2-730	4082
41	UNIV NOTRE DAME	L VERNON	ARC	S M BATILL	NCA 2-753	4083
41	UNIV NOTRE DAME	L VERNON	ARC	P F DUNN	NCA 2-770	4084
41	UNIV NOTRE DAME	L E PUTNAM	LARC	S M BATILL	NCC 1-177	4085
41	IOWA ST U	J D BERRY	LARC	R G RAJAGOPALAN	NAG 1-1267	4092
41	IOWA ST U	D J KOGA	ARC	W J COOK	NAG 2-715	4095
41	IOWA ST U	T A EDWARDS	ARC	J C TANNEHILL	NAG 2-776	4097
41	IOWA ST U	M D HATHAWAY	LERC	T H OKIISHI	NAG 3-917	4098
41	IOWA ST U	L REID	LERC	T H OKIISHI	NAG 3-1075	4099
41	IOWA ST U	B A REICHERT	LERC	T H OKIISHI	NAG 3-1275	4100
41	IOWA ST U	K L SUDER	LERC	T H OKIISHI	NAG 3-1302	4101
41	IOWA ST U	F A NEWMAN	LERC	T H OKIISHI	NAG 3-1427	4104
41	IOWA ST U	P G BUNING	ARC	R G RAJAGOPALAN	NCA 2-486	4121
41	IOWA ST U	M M RAI	ARC	R G RAJAGOPALAN	NCA 2-541	4123
41	IOWA ST U	D KWAK	ARC	R G RAJAGOPALAN	NCA 2-732	4124
41	IOWA ST U	F C OWENS	HQ	R G HINDMAN	NGT 00-050-441	4127
41	IOWA ST U	F C OWENS	HQ	B L PIERSON	NGT 00-050-637	4129
41	IOWA ST U	E PRIOR	LARC	A ROTHMAYER	NGT 00-051-009	4135
41	IOWA ST U	D K RUSSELL	HQ	P LU	NGT 00-070-305	4137
41	IOWA ST U	D K RUSSELL	HQ	B PIERSON	NGT 00-070-347	4138
41	UNIV KANSAS	L T NGUYEN	LARC	C E LAN	NAG 1-1087	4195
41	UNIV KANSAS	F W BURCHAM	ARC	J ROSKAM	NAG 2-789	4196
41	UNIV KANSAS	R A KENNELLY	ARC	J ROSKAM	NCA 2-749	4215
41	UNIV KANSAS	K K GUPTA	ARC	J E LOCKE	NCA 2-766	4216
41	UNIV KANSAS	D L CLER	LARC	S FAROKHI	NCC 1-172	4217
41	UNIV KANSAS	J GERA	ARC	D R DOWNING	NCC 2-588	4218
41	UNIV KANSAS	J V LEBACQZ	ARC	D R DOWNING	NCC 2-732	4219
41	UNIV KANSAS	E W AIKEN	ARC	D R DOWNING	NCC 2-805	4220
41	UNIV KANSAS	J M ABBOTT	LERC	R TAGHAVI	NCC 3-251	4221
41	WICHITA ST U	T K O'BRIEN	LARC	S J HOOPER	NAG 1-1128	4235
41	WICHITA ST U	T K O'BRIEN	LARC	S J HOOPER	NAG 1-1488	4236
41	WICHITA ST U	G S BIDWELL	LERC	G W ZUMWALT	NAG 3-566	4237
41	WICHITA ST U	J W USRY	LARC	L S MILLER	NCC 1-149	4238
41	JOHNS HOPKINS UNIV	D VITABLANO	GSFC	W MOOS	NAS 5-30403	4415

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41	UNIV MD-COLLEGE PARK	J L WALSH	LARC	I CHOPRA	NAG 1-985	4444
41	UNIV MD-COLLEGE PARK	T A ZANG	LARC	U PIOMELLI	NAG 1-1089	4445
41	UNIV MD-COLLEGE PARK	S BAUER	LARC	J D ANDERSON	NAG 1-1192	4446
41	UNIV MD-COLLEGE PARK	W T YEAGER	LARC	I CHOPRA	NAG 1-1253	4447
41	UNIV MD-COLLEGE PARK	A KUMAR	LARC	M J LEWIS	NAG 1-1333	4449
41	UNIV MD-COLLEGE PARK	G B NORTHAM	LARC	J D ANDERSON	NAG 1-1384	4450
41	UNIV MD-COLLEGE PARK	M J WALSH	LARC	J M WALLACE	NAG 1-1528	4453
41	UNIV MD-COLLEGE PARK	L M GREGORY	LARC	D K SCHMIDT	NAG 1-1540	4454
41	UNIV MD-COLLEGE PARK	K Q NGUYEN	ARC	I CHOPRA	NAG 2-409	4455
41	UNIV MD-COLLEGE PARK	M B TISCHLER	ARC	R CELI	NAG 2-793	4459
41	UNIV MD-COLLEGE PARK	M B TISCHLER	ARC	W S LEVINE	NAG 2-794	4460
41	UNIV MD-COLLEGE PARK	T M SANDERS	LERC	A K GUPTA	NAG 3-1488	4465
41	UNIV MD-COLLEGE PARK	T D SWANSON	GSFC	K E HEROLD	NAG 5-1933	4503
41	UNIV MD-COLLEGE PARK	D CROSBY	GSFC	S GLOECKLER	NAS 5-30370	4586
41	UNIV MD-COLLEGE PARK	M TISCHLER	ARC	A L TITS	NCA 2-510	4594
41	UNIV MD-COLLEGE PARK	M B TISCHLER	ARC	R CELI	NCA 2-511	4595
41	UNIV MD-COLLEGE PARK	J BOWLES	ARC	M J LEWIS	NCA 2-611	4596
41	UNIV MD-COLLEGE PARK	G S DEIWERT	ARC	M J LEWIS	NCA 2-624	4597
41	UNIV MD-COLLEGE PARK	W G WARMBRODT	ARC	I CHOPRA	NCC 2-829	4600
41	UNIV MD-COLLEGE PARK	P MOIN	ARC	J M WALLACE	NCC 2-5003	4601
41	MASS INST OF TECH	R C MONTGOMERY	LARC	W E VANDERVELDE	NAG 1-126	4753
41	MASS INST OF TECH	C C LEE	LARC	R J HANSMAN	NAG 1-690	4754
41	MASS INST OF TECH	J H STARNES	LARC	P A LAGACE	NAG 1-991	4758
41	MASS INST OF TECH	B J BACON	LARC	L VALAVANI	NAG 1-1088	4760
41	MASS INST OF TECH	J D BERRY	LARC	S R HALL	NAG 1-1299	4762
41	MASS INST OF TECH	J M SEINER	LARC	I A WAITZ	NAG 1-1511	4765
41	MASS INST OF TECH	C H GERHOLD	LARC	I A WAITZ	NAG 1-1512	4766
41	MASS INST OF TECH	K R MEADOWS	LARC	R R ROSALES	NAG 1-1519	4767
41	MASS INST OF TECH	S K ROBINSON	LARC	K S BREYER	NAG 1-1525	4768
41	MASS INST OF TECH	C A POWELL	LARC	R J HANSMAN JR.	NAG 1-1531	4769
41	MASS INST OF TECH	L L ERIKSON	ARC	M DRELA	NAG 2-853	4776
41	MASS INST OF TECH	J J ADAMCZYK	LERC	E E COVERT	NAG 3-660	4778
41	MASS INST OF TECH	M G POTAPCZUK	LERC	R J HANSMAN	NAG 3-666	4779
41	MASS INST OF TECH	L F SCHUMANN	LERC	A H EPSTEIN	NAG 3-770	4781
41	MASS INST OF TECH	P L MEITNER	LERC	G S TAN	NAG 3-772	4782
41	MASS INST OF TECH	J J ADAMCZYK	LERC	E M GREITZER	NAG 3-844	4783
41	MASS INST OF TECH	J J REINMANN	LERC	R J HANSMAN	NAG 3-927	4785
41	MASS INST OF TECH	C DRUMMOND	LERC	C S TAN	NAG 3-953	4786
41	MASS INST OF TECH	A J STRAZISAR	LERC	A H EPSTEIN	NAG 3-1013	4787
41	MASS INST OF TECH	J J ADAMCZYK	LERC	C S TAN	NAG 3-1176	4790
41	MASS INST OF TECH	J D HEIDMANN	LERC	A H EPSTEIN	NAG 3-1214	4791
41	MASS INST OF TECH	G J SKOCH	LERC	E M GREITZER	NAG 3-1237	4792
41	MASS INST OF TECH	C K DRUMMOND	LERC	I A WAITZ	NAG 3-1364	4794
41	MASS INST OF TECH	M G POTAPCZUK	LERC	M DRELA	NAG 3-1443	4796
41	MASS INST OF TECH	C K DRUMMOND	LERC	A H EPSTEIN	NAG 3-1448	4797
41	MASS INST OF TECH	A J STRAZISAR	LERC	E M GREITZER	NAG 3-1513	4800
41	MASS INST OF TECH	S H GOLDSTEIN	JSC	J L KERREBROCK	NAG 9-694	4862
41	MASS INST OF TECH	G STOVER	LARC	E CRAWLEY	NAS 1-19622	4924
41	MASS INST OF TECH	J HEEG	LARC	E F CRAWLEY	NCC 1-157	4945
41	MASS INST OF TECH	S A JACKLIN	ARC	N D HAM	NCC 2-366	4946
41	MASS INST OF TECH	P D TALBOT	ARC	N D HAM	NCC 2-447	4947
41	MASS INST OF TECH	M E GOLDSTEIN	LERC	M T LANDAHL	NCC 3-117	4950
41	MASS INST OF TECH	S A APP	LERC	J L KERREBROCK	NCC 3-265	4952
41	MASS INST OF TECH	C J MAREK	LERC	I A WAITZ	NCC 3-307	4953
41	MASS INST OF TECH	F R MORRELL	LARC	R W SIMPSON	NGL22-9640	4954
41	MASS INST OF TECH	F C OWENS	HQ	S R BUSSOLARI	NGT 00-050-512	4963
41	TUFTS UNIV	M J WALSH	LARC	C ROGERS	NAG 1-1523	4991
41	UNIV MASS-AMHERST	D LEVINE	GSFC	C T SWIFT	NAS 5-30761	5024
41	MICHIGAN ST U	L M WEINSTEIN	LARC	R E FALCO	NAG 1-1106	5068
41	MICHIGAN ST U	P H MIRICK	LARC	P M FITZSIMONS	NCC 1-175	5078

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FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
41	U MICHIGAN-ANN ARBOR	R W GUY	LARC	T C ADAMSON	NAG 1-1290	5106
41	U MICHIGAN-ANN ARBOR	K S BRENTNER	LARC	P L ROE	NAG 1-1514	5115
41	U MICHIGAN-ANN ARBOR	L BERKE	LERC	N KIKUCHI	NAG 3-1160	5126
41	U MICHIGAN-ANN ARBOR	P B RUSSELL	ARC	J VESECKY	NCA 2-681	5219
41	U MICHIGAN-ANN ARBOR	B SRIDHAR	ARC	N H MCCCLAMROCH	NCC 2-573	5222
41	U MICHIGAN-ANN ARBOR	F C OWENS	HQ	K G POWELL	NGT 00-050-545	5231
41	U MICHIGAN-ANN ARBOR	F C OWENS	HQ	K G POWELL	NGT 00-050-644	5234
41	U MICHIGAN-ANN ARBOR	B HASTINGS	ARC	P ROE	NGT 00-050-931	5239
41	WAYNE ST U	L MAESTRELLO	LARC	P L CHOW	NAG 1-1175	5251
41	WAYNE ST U	R R TACINA	LERC	M C LAI	NAG 3-1140	5253
41	U MINN-MNPLS-ST PAUL	B J BACON	LARC	W L GARRARD	NAG 1-821	5266
41	U MINN-MNPLS-ST PAUL	C L STREETT	LARC	D D JOSEPH	NAG 1-1166	5267
41	U MINN-MNPLS-ST PAUL	B J BACON	LARC	W L GARRARD	NAG 1-1380	5270
41	U MINN-MNPLS-ST PAUL	L R HUNT	LARC	G V CANDLER	NAG 1-1470	5271
41	U MINN-MNPLS-ST PAUL	K SUTTON	LARC	G V CANDLER	NAG 1-1498	5272
41	U MINN-MNPLS-ST PAUL	P MOIN	ARC	T S LUNDGREN	NCA 2-622	5313
41	U MINN-MNPLS-ST PAUL	R T CHEN	ARC	Y ZHAO	NCC 2-809	5314
41	U MINN-MNPLS-ST PAUL	H S LEE	LERC	S V PATANKAR	NCC 3-238	5315
41	U MINN-MNPLS-ST PAUL	M MOORE	ARC	A LYNNNTZIS	NGT 00-051-169	5329
41	U MINN-DULUTH	G S DEIWERT	ARC	G V CANDLER	NCA 2-819	5333
41	MISSISSIPPI STATE U	F C THAMES	LARC	D L WHITFIELD	NAG 1-226	5338
41	MISSISSIPPI STATE U	D W BARTLETT	LARC	M J JANUS	NAG 1-1271	5339
41	MISSISSIPPI STATE U	J W POSEY	LARC	D L WHITFIELD	NAG 1-1369	5340
41	MISSISSIPPI STATE U	D HOYNIK	LERC	D L WHITFIELD	NAG 3-767	5342
41	MISSISSIPPI STATE U	J M SANZ	LERC	D WHITFIELD	NAG 3-869	5343
41	MISSISSIPPI STATE U	G L STEFKO	LERC	D L WHITFIELD	NAG 3-983	5344
41	MISSISSIPPI STATE U	J J ADAMCZYK	LERC	D L WHITFIELD	NAG 3-1157	5346
41	MISSISSIPPI STATE U	J C RICHARD	LERC	T W SWAPFORD	NAG 3-1170	5347
41	MISSISSIPPI STATE U	D L HUFF	LERC	J M JANUS	NAG 3-1228	5348
41	MISSISSIPPI STATE U	J P VERES	LERC	D L WHITFIELD	NAG 3-1357	5349
41	UNIV MISSISSIPPI-U	G L MCANINCH	LARC	H E BASS	NAG 1-1385	5369
41	U MISSOURI-COLUMBIA	B W WEBBON	ARC	J B MILES	NAG 2-589	5378
41	U MISSOURI-COLUMBIA	R JUDAY	JSC	J KNOPP	NAG 9-404	5381
41	U MISSOURI-COLUMBIA	R JUDAY	JSC	J KNOPP	NAG 9-606	5383
41	U MISSOURI-COLUMBIA	J L BROWN	ARC	J B MILES	NCC 2-566	5387
41	UNIV MISSOURI-ROLLA	C R MCCLINTON	LARC	D W RIGGINS	NAG 1-1189	5390
41	UNIV MISSOURI-ROLLA	R M BENNETT	LARC	F FINAISH	NAG 1-1482	5391
41	UNIV MISSOURI-ROLLA	J H DITTMAR	LERC	W EVERSMAN	NAG 3-178	5393
41	WASHINGTON UNIV	J H STARNES	LARC	S SRIDHARAN	NAG 1-1279	5399
41	WASHINGTON UNIV	H M ADELMAN	LARC	D A PETERS	NAG 1-1373	5400
41	WASHINGTON UNIV	R A ORMISTON	ARC	D A PETERS	NAG 2-728	5401
41	MONTANA ST U	S K ROBINSON	LARC	A DEMETRIADES	NAG 1-1307	5455
41	U NEBRASKA-LINCOLN	K K GUPTA	ARC	C W MARTIN	NCA 2-593	5493
41	U NEBRASKA-LINCOLN	K K GUPTA	ARC	D W MARTIN	NCA 2-699	5495
41	U NEBRASKA-LINCOLN	K K GUPTA	ARC	C W MARTIN	NCA 2-762	5496
41	UNIV NEVADA-RENO	D P BENCZE	ARC	W C ROSE	NCC 2-507	5515
41	PRINCETON UNIV	P A GNOFFO	LARC	S H LAM	NAG 1-726	5616
41	PRINCETON UNIV	D A HINTON	LARC	R F STENGEL	NAG 1-834	5617
41	PRINCETON UNIV	W T SUIT	LARC	K D MEASE	NAG 1-907	5618
41	PRINCETON UNIV	W E ZORUMSKI	LARC	A SMITS	NAG 1-1072	5619
41	PRINCETON UNIV	G B NORTHAM	LARC	R B MILES	NAG 1-1281	5621
41	PRINCETON UNIV	J W FLETCHER	ARC	H C CURTISS	NAG 2-561	5623
41	PRINCETON UNIV	J F MADDEN	ARC	R M MCKILLIP	NAG 2-694	5624
41	PRINCETON UNIV	S E CLIFF-HOVEY	ARC	T J BAKER	NAG 2-734	5626
41	PRINCETON UNIV	F F FELKER	ARC	R M MCKILLIP	NAG 2-783	5628
41	PRINCETON UNIV	S E CLIFF-HOVEY	ARC	T J BAKER	NAG 2-784	5629
41	PRINCETON UNIV	S E CLIFF	ARC	A JAMESON	NAG 2-818	5630
41	PRINCETON UNIV	W R HINGST	LERC	A J SMITS	NAG 3-1022	5632
41	PRINCETON UNIV	F R MORRELL	LARC	R F STENGEL	NGL31-1252	5676
41	RUTGERS ST U-N BRNSK	T J COAKLEY	ARC	D D KNIGHT	NAG 2-798	5690

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41	RUTGERS ST U-N BRNSK	G H KIDWELL	ARC	S AMAREL	NAG 2-817	5691
41	NEW MEX ST U-LAS CR	K HENDERSON	JSC	G R PARKER	NAG 9-610	5746
41	NEW MEX ST U-LAS CR	D WILLIAMS	GSFC	UNAVAILABLE	NAS 5-30105	5759
41	NEW MEX ST U-LAS CR	W W WEST	WFF	K LANE	NAS 5-31688	5763
41	CITY COL OF NEW YORK	D M BUDHNELL	LARC	J A JOHNSON III	NAG 1-377	5811
41	CITY COL OF NEW YORK	M G MACARAEG	LARC	A ACRIVOS	NAG 1-1159	5812
41	CLARKSON UNIV	S O KJELGAARD	LARC	M N	NAG 1-1481	5822
41	CLARKSON UNIV	E M HAMLIN	ARC	M N GLAUSER	NAG 2-724	5823
41	CLARKSON UNIV	F C OWENS	HQ	G AHMADI	NGT 00-050-825	5834
41	CORNELL UNIV	F FARASSAT	LARC	A R GEORGE	NAG 1-1078	5918
41	CORNELL UNIV	D R HOAD	LARC	A R GEORGE	NAG 1-1396	5922
41	CORNELL UNIV	J P DRUMMOND	LARC	S B POPE	NAG 1-1542	5923
41	CORNELL UNIV	J M SEINER	LARC	J L LUMLEY	NAG 1-1543	5924
41	CORNELL UNIV	M MOSHER	ARC	A R GEORGE	NAG 2-554	5926
41	CORNELL UNIV	W J CHYU	ARC	D A CAUGHEY	NAG 2-665	5930
41	CORNELL UNIV	F A NEWMAN	LERC	F K MOORE	NAG 3-349	5936
41	CORNELL UNIV	C LAWRENCE	LERC	J F ABEL	NAG 3-1063	5939
41	CORNELL UNIV	F A NEWMAN	LERC	E L RESLER	NAG 3-1069	5940
41	CORNELL UNIV	C M LEE	LERC	Z L RESLER	NAG 3-1114	5941
41	CORNELL UNIV	G S DEIWERT	ARC	I BOYD	NCA 2-820	6007
41	POLY INST OF NY	W R HINGST	LERC	I M KALKHORAN	NAG 3-1378	6050
41	POLY INST OF NY	Y M YU	ARC	M P ISOM	NCC 2-172	6053
41	RENSSELAER POLY INST	G L MCANINCH	LARC	J D COLE	NAG 1-1362	6057
41	RENSSELAER POLY INST	L P YIP	LARC	B E THOMPSON	NAG 1-1520	6060
41	RENSSELAER POLY INST	T A LASINSKI	ARC	M S SHEPPARD	NAG 2-832	6061
41	RENSSELAER POLY INST	L BERKE	LERC	P HAJELA	NAG 3-1196	6063
41	RENSSELAER POLY INST	C J MAREK	LERC	H T NAGAMATSN	NAG 3-1375	6064
41	RENSSELAER POLY INST	F MONTEGANI	LERC	L N MYRABO	NGT 00-051-049	6088
41	RENSSELAER POLY INST	E J PRIOR	LARC	Z RUSAK	NGT 00-051-113	6089
41	ST U NY-BINGHAMTON	S A RIZZI	LARC	R N MILES	NAG 1-1406	6128
41	ST U OF NY-BUFFALO	J J ADAMCZYK	LERC	D B TAULBEE	NAG 3-962	6139
41	ST U OF NY-BUFFALO	R W CLAUS	LERC	P GIVI	NAG 3-1011	6140
41	ST U OF NY-BUFFALO	F C OWENS	HQ	D J INMAN	NGT 00-050-689	6148
41	SYRACUSE UNIV	W T YEAGER	LARC	V R MURTHY	NAG 1-759	6195
41	SYRACUSE UNIV	J M SEINER	LARC	D S DOSANJH	NAG 1-1240	6196
41	SYRACUSE UNIV	J E O'BRIEN	LERC	E A BOGUCZ	NAG 3-1051	6202
41	SYRACUSE UNIV	J P VERES	LERC	T Q DANG	NAG 3-1468	6203
41	DUKE UNIV	G L STEFKO	LERC	E H DOWELL	NAG 3-724	6227
41	DUKE UNIV	D HOYNIK	LERC	K C HALL	NAG 3-1192	6228
41	DUKE UNIV	D HOYNIK	LERC	K HALL	NAG 3-1433	6229
41	NO CAROLINA A&T ST U	T B GATSKI	LARC	S CHANDRA	NAG 1-1287	6258
41	NC ST U.-RALEIGH	J E HARRIS	LARC	H A HASSAN	NAG 1-244	6275
41	NC ST U.-RALEIGH	L R HUNT	LARC	G V CANDLER	NAG 1-1330	6286
41	NC ST U.-RALEIGH	R E SMITH	LARC	D S MCRAE	NAG 1-1340	6287
41	NC ST U.-RALEIGH	E A KREJSA	LERC	R T NAGEL	NAG 3-855	6290
41	NC ST U.-RALEIGH	J E HARRIS	LARC	H A HASSAN	NCC 1-22	6309
41	NC ST U.-RALEIGH	W E SCHOONOVER JR.	LARC	N CHOKANI	NCC 1-46	6310
41	NC ST U.-RALEIGH	E V ZOBY	LARC	F R DEJARNETTE	NCC 1-100	6311
41	NC ST U.-RALEIGH	K SUTTON	LARC	H A HASSAN	NCC 1-112	6312
41	NC ST U.-RALEIGH	K SUTTON	LARC	G V CANDLER	NCC 1-140	6313
41	NC ST U.-RALEIGH	J S HILL	LARC	F R DEJARNETTE	NCC 1-141	6314
41	NC ST U.-RALEIGH	C G MILLER	LARC	J N PERKINS	NCC 1-153	6315
41	NC ST U.-RALEIGH	L P YIP	LARC	J N PERKINS	NCC 1-154	6316
41	NC ST U.-RALEIGH	P L COE	LARC	J N PERKINS	NCC 1-162	6317
41	NC ST U.-RALEIGH	J A AL-SAAD	LARC	N CHOKANI	NCC 1-169	6319
41	NC ST U.-RALEIGH	P A GNOFFO	LARC	G D WALBERG	NCC 1-170	6320
41	NC ST U.-RALEIGH	S P WILKINSON	LARC	N CHEKANI	NCC 1-183	6321
41	NC ST U.-RALEIGH	E PRIOR	LARC	G V CANDLER	NGT 00-051-005	6327
41	CASE WESTERN RES U	R E COLTRIN	LERC	E RESHOTKO	NAG 3-1130	6379
41	CASE WESTERN RES U	F A NEWMAN	LERC	F E MCCAUGHAN	NAG 3-1179	6382

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41	CASE WESTERN RES U	C F LORENZO	LERC	S M PHILLIPS	NAG 3-1232	6385
41	CASE WESTERN RES U	W R HINGST	LERC	M MEHREGANY	NAG 3-1273	6386
41	CASE WESTERN RES U	C K DRUMMOND	LERC	F E MCCAUGHAN	NAG 3-1337	6391
41	CASE WESTERN RES U	J K LYTTLE	LERC	I GREEBER	NAG 3-1541	6401
41	CASE WESTERN RES U	L A POVINELLI	LERC	E RESHOTKO	NCC 3-124	6420
41	CASE WESTERN RES U	B H ANDERSON	LERC	I GREBER	NCC 3-181	6430
41	CASE WESTERN RES U	L A POVINELLI	LERC	I GREBER	NCC 3-202	6431
41	CASE WESTERN RES U	J J ADAMCZYK	LERC	J R KADAMBF	NCC 3-263	6443
41	CLEVELAND ST U	K S CHUN	LERC	B GHORASHI	NAG 3-1010	6483
41	CLEVELAND ST U	D R HULL	LERC	S N TEWARI	NCC 3-111	6501
41	CUYAHOGA COMMUNITY C	F H YARRIS	LERC	B L CANEPARI	NCC 3-185	6538
41	LORAIN CNTY COMTY C	F H YARRIS	LERC	J COLE	NCC 3-184	6553
41	OHIO ST U	C M BELCASTRO	LARC	R K YEDAVALLI	NAG 1-1164	6558
41	OHIO ST U	R E COLTRIN	LERC	J D LEE	NAG 3-986	6568
41	OHIO ST U	E A KREJSA	LERC	J N SCOTT	NAG 3-1058	6569
41	OHIO ST U	W A ORAN	HQ	H MOELLERING	NAGW 973	6599
41	OHIO ST U	J ROSS	ARC	J LEE	NCA 2-648	6618
41	OHIO ST U	K CORKER	ARC	D D WOODS	NCC 2-592	6619
41	OHIO ST U	J K RAMSEY	LERC	J D LEE	NCC 3-198	6622
41	OHIO ST U	D A HOLLAND	HQ	M R FOSTER	NGT 00-051-072	6628
41	UNIV AKRON	C C CHAMIS	LERC	D G FERTIS	NAG 3-50	6646
41	UNIV AKRON	S M ARNOLD	LERC	D N ROBINSON	NAG 3-379	6647
41	UNIV AKRON	W OLSEN	LERC	R J SCAVUZZO	NAG 3-479	6648
41	UNIV AKRON	C C CHAMIS	LERC	J PADOVAN	NAG 3-664	6649
41	UNIV AKRON	S M ARNOLD	LERC	H Q TAN	NAG 3-872	6651
41	UNIV AKRON	S M ARNOLD	LERC	T P CHANG	NAG 3-901	6653
41	UNIV AKRON	C C CHAMIS	LERC	J PADOVAN	NAG 3-1142	6658
41	UNIV AKRON	S M ARNOLD	LERC	W K BINIENDA	NAG 3-1223	6662
41	UNIV AKRON	S M ARNOLD	LERC	H QIAN TAN	NAG 3-1306	6666
41	UNIV AKRON	K J MELCHER	LERC	T T HARTLEY	NAG 3-1450	6672
41	UNIV AKRON	S M ARNOLD	LERC	A F SALEEB	NAG 3-1493	6674
41	UNIV AKRON	M S LIOU	LERC	B P LEONARD	NCC 3-178	6681
41	UNIV CINCINNATI	J H STARNES	LARC	G J SIMITSES	NAG 1-1280	6692
41	UNIV CINCINNATI	J J ADAMCZYK	LERC	S G RUBIN	NAG 3-397	6695
41	UNIV CINCINNATI	C C CHAMIS	LERC	A H NAYFEH	NAG 3-1173	6697
41	UNIV CINCINNATI	L BERKE	LERC	A H NAYFEH	NAG 3-1174	6698
41	UNIV CINCINNATI	C C CHAMIS	LERC	A H NAYFEH	NAG 3-1175	6699
41	UNIV CINCINNATI	T J BENSON	LERC	S G RUBIN	NAG 3-1178	6700
41	UNIV CINCINNATI	J D SAUNDERS	LERC	A HAMED	NAG 3-1213	6702
41	UNIV CINCINNATI	D R REDDY	LERC	P D ORKWIS	NAG 3-1472	6704
41	UNIV CINCINNATI	C C CHAMIS	LERC	A H NAYFEH	NAG 3-1527	6705
41	UNIV CINCINNATI	S H GOLDSTEIN	JSC	T W WILLIAMS	NAG 9-717	6707
41	UNIV CINCINNATI	P C MURPHY	LARC	B K WALKER	NCC 1-165	6713
41	UNIV CINCINNATI	P C MURPHY	LARC	B K WALKER	NCC 1-181	6714
41	UNIV CINCINNATI	T J DAVIS	ARC	G L SLATER	NCC 2-669	6715
41	UNIV CINCINNATI	L D NICHOLS	LERC	A HAMED	NCC 3-237	6717
41	UNIV CINCINNATI	D L BULZAN	LERC	S JENG	NCC 3-282	6719
41	UNIV TOLEDO	M VARGAS	LERC	K J DEWITT	NAG 3-72	6733
41	UNIV TOLEDO	G L STEFKO	LERC	T G KEITH	NAG 3-742	6736
41	UNIV TOLEDO	L J KIRALY	LERC	H M STANDLEY	NAG 3-975	6738
41	UNIV TOLEDO	G L STEFKO	LERC	T G KEITH	NAG 3-1068	6739
41	UNIV TOLEDO		LERC	T G KEITH JR	NAG 3-1137	6741
41	UNIV TOLEDO	R W CLAUS	LERC	T G KEITH	NAG 3-1219	6743
41	UNIV TOLEDO	G L STEFKO	LERC	T G KEITH	NAG 3-1230	6745
41	UNIV TOLEDO	A P KURKOU	LERC	T G KEITH	NAG 3-1234	6746
41	UNIV TOLEDO	T H BOND	LERC	K C MASIULANIEC	NAG 3-1276	6748
41	UNIV TOLEDO	G L STEFKO	LERC	T G KEITH JR.	NAG 3-1449	6754
41	UNIV TOLEDO	L H FISHBACH	LERC	K J DEWITT	NCC 3-193	6768
41	UNIV TOLEDO	L D NICHOLS	LERC	A A AFJEH	NCC 3-207	6770
41	UNIV TOLEDO	G L STEFKO	LERC	T G KEITH	NCC 3-247	6772

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41	UNIV TOLEDO	S M ARNOLD	LERC	T WILT	NCC 3-248	6773
41	UNIV OKLAHOMA-NORMAN	R J GUNDERMAN	LERC	R K CRANE	NAS 3-26957	6799
41	OREGON ST U	A J OSTROFF	LARC	R R MOHLER	NAG 1-1081	6805
41	UNIV OREGON-EUGENE	P A GNOFFO	LARC	C F HANSEN	NAG 1-1427	6860
41	UNIV OREGON-EUGENE	J SCARGLE	ARC	J IMAMURA	NCA 2-671	6865
41	CARNEGIE-MELLON UNIV	W J CHYU	ARC	T SHIH	NAG 2-709	6871
41	CARNEGIE-MELLON UNIV	R J ROELKE	LERC	T I SHIH	NAG 3-929	6873
41	DREXEL UNIV	M R WASZAK	LARC	R FISCHL	NAG 1-1102	6902
41	DREXEL UNIV	M J RABINOWITZ	LERC	D L MILLER	NAG 3-1117	6906
41	DREXEL UNIV	R R TACINA	LERC	K J CHOI	NAG 3-1421	6908
41	PA ST U.-UNIV. PARK	J D SHAUGHNESSY	LARC	M D MAUGHMER	NAG 1-849	6934
41	PA ST U.-UNIV. PARK	J H STARNES	LARC	H T HAHN	NAG 1-982	6936
41	PA ST U.-UNIV. PARK	J M SEINER	LARC	P J MORRIS	NAG 1-1047	6938
41	PA ST U.-UNIV. PARK	W E ZORUMSKI	LARC	G S SETTLES	NAG 1-1070	6940
41	PA ST U.-UNIV. PARK	P E MINECK	LARC	M K MAUGHMER	NAG 1-1198	6942
41	PA ST U.-UNIV. PARK	G L MCANINCH	LARC	A D PIERCE	NAG 1-1365	6945
41	PA ST U.-UNIV. PARK	J W POSEY	LARC	L N LONG	NAG 1-1367	6946
41	PA ST U.-UNIV. PARK	L M WEINSTEIN	LARC	G S SETTLES	NAG 1-1412	6950
41	PA ST U.-UNIV. PARK	W E ZORUMSKI	LARC	P J MORRIS	NAG 1-1479	6953
41	PA ST U.-UNIV. PARK	D BELLAVIA	ARC	J M CIMBALA	NAG 2-484	6956
41	PA ST U.-UNIV. PARK	C C HORSTMAN	ARC	G S SETTLES	NAG 2-575	6957
41	PA ST U.-UNIV. PARK	C C HORSTMAN	ARC	G S SETTLES	NAG 2-781	6959
41	PA ST U.-UNIV. PARK	R J BOYLE	LERC	B LAKSHMINARAYANA	NAG 3-555	6962
41	PA ST U.-UNIV. PARK	P F PENKO	LERC	C L MERKLE	NAG 3-1020	6965
41	PA ST U.-UNIV. PARK	P M SOCKOL	LERC	B LAKSHMINARAYANA	NAG 3-1168	6968
41	PA ST U.-UNIV. PARK	A J STRAZISAR	LERC	B LAKSHMINARAYANA	NAG 3-1222	6969
41	PA ST U.-UNIV. PARK	B H ANDERSON	LERC	H MCDONALD	NAG 3-1485	6976
41	PA ST U.-UNIV. PARK	M ROCKER	MSFC	V YANG	NAG 8-136	7006
41	PA ST U.-UNIV. PARK	J VARGAS	MSFC	R CORBIN	NAG 8-288	7011
41	PA ST U.-UNIV. PARK	G A WILHOLD	MSFC	R J SANTORO	NAS 8-38862	7051
41	PA ST U.-UNIV. PARK	L GRIFFIN	MSFC	B LAKSHMINARAYANA	NAS 8-38867	7052
41	PA ST U.-UNIV. PARK	J BOWLES	ARC	G S DULIKRAVICH	NCA 2-769	7054
41	PA ST U.-UNIV. PARK	F C OWENS	HQ	M D MAUGHMER	NGT 00-050-341	7064
41	PA ST U.-UNIV. PARK	F C OWENS	HQ	V YANG	NGT 00-050-532	7068
41	PA ST U.-UNIV. PARK	J T LYNCH	HQ	G KOODMANN	NGT 00-051-106	7076
41	PA ST U.-UNIV. PARK	E PRIOR	LARC	L N LONG	NGT 00-051-118	7077
41	BROWN UNIV	G ERLEBACHER	LARC	D GOTTLIEB	NAG 1-703	7140
41	BROWN UNIV	J G BATTERSON	LARC	A E PEARSON	NAG 1-1065	7141
41	BROWN UNIV	H L ATKINS	LARC	C W SHU	NAG 1-1145	7142
41	BROWN UNIV	T B GATSKI	LARC	L SIROVICH	NAG 1-1230	7143
41	BROWN UNIV	M D DAHL	LERC	J T LIU	NAG 3-1016	7145
41	BROWN UNIV	M D DAHL	LERC	J T LIU	NAG 3-1484	7146
41	CLEMSON UNIV-CLEMSON	M J SHUART	LARC	S B BIGGERS	NAG 1-1141	7214
41	UNIV SOUTH DAKOTA	J M SKULTETY	ARC	M M GRANAAS	NAG 2-492	7269
41	TENNESSEE ST U	R F LAWRENCE	LERC	D B ROGERS	NAG 3-1171	7286
41	TENNESSEE ST U	W C MERRILL	LERC	M S ZEIN-SABATTO	NAG 3-1471	7287
41	UNIV TENN-KNOXVILLE	P J BOBBITT	LARC	J M WU	NAG 1-844	7299
41	UNIV TENN-KNOXVILLE	C L BURLEY	LARC	J S STEINHOFF	NAG 1-1368	7301
41	UNIV TENN-KNOXVILLE	D L HUFF	LERC	J CARUTHERS	NAG 3-1516	7305
41	UNIV TENN-KNOXVILLE	D P VALLELY	MSFC	M ALI	NAG 8-166	7308
41	UNIV TENN-KNOXVILLE	F C OWENS	HQ	S M JENG	NGT 00-050-646	7322
41	UNIV TENN-KNOXVILLE	F SIX	MSFC	T D MCCAY	NGT 00-050-876	7325
41	UNIV TENN-KNOXVILLE	F MONTEGANI	LERC	R J SCHULZ	NGT 00-051-048	7327
41	VANDERBILT UNIV	C C CHAMIS	LERC	T A CRUSE	NAG 3-1352	7333
41	VANDERBILT UNIV	C C CHAMIS	LERC	S MAHADEVAN	NAG 3-1372	7334
41	PRAIRIE VIEW A&M U	E T MELEASON	LERC	I CHANG	NAG 3-1500	7387
41	RICE UNIV	M B TRACY	LARC	A J MEADE	NAG 1-1433	7397
41	RICE UNIV	P E HUNTER	HQ	J E DENNIS	NCCW 27	7432
41	TEXAS A&M UNIV	J P WEIDNER	LARC	F K LU	NAG 1-891	7462
41	TEXAS A&M UNIV	L C HARTUNG	LARC	L A CARLSON	NAG 1-1003	7463

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FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
41	TEXAS A&M UNIV	S K ROBINSON	LARC	A AHMED	NAG 1-1273	7465
41	TEXAS A&M UNIV	M F CARD	LARC	O W MICKS	NAG 1-1522	7470
41	TEXAS A&M UNIV	D E PAXSON	LERC	T SCHOBELIRI	NAG 3-1144	7474
41	TEXAS A&M UNIV	C C CHAMIS	LERC	J D WHITCOMB	NAG 3-1270	7477
41	TEXAS A&M UNIV	C D SCOTT	JSC	L A CARLSON	NAG 9-680	7517
41	TEXAS A&M UNIV	J CANNON	MSFC	W CHILDS	NAS 8-37821	7532
41	TEXAS A&M UNIV	D KANIPE	JSC	O NICKS	NAS 9-18261	7533
41	TEXAS A&M UNIV	R E MEYERSON	JSC	O NICKS	NAS 9-18882	7534
41	TEXAS A&M UNIV	J H DEL FRATE	ARC	D T WARD	NCC 2-742	7536
41	TEXAS A&M UNIV-SYSTN	W WHITLOW	LARC	L A CARLSON	NAG 1-793	7561
41	TEXAS A&M UNIV-SYSTN	R J MCGHEE	LARC	O W NICKS	NAG 1-1260	7562
41	TEXAS A&M UNIV-SYSTN	J H DEL FRATE	ARC	D T WARD	NAG 2-651	7563
41	UNIV HOUSTON	J BURKE	JSC	B H JANSEN	NAG 9-544	7600
41	U TX-AUSTIN	D D MOERDER	LARC	J L SPGYER	NAG 1-944	7686
41	U TX-AUSTIN	W E ZORUMSKI	LARC	D S DOLLING	NAG 1-1005	7687
41	U TX-AUSTIN	G L MCANINCH	LARC	D T BLACKSTOCK	NAG 1-1204	7689
41	U TX-AUSTIN	W E ZORUMSKI	LARC	D S DOLLING	NAG 1-1471	7692
41	U TX-AUSTIN	W R HINGST	LERC	D S DOLLING	NAG 3-1023	7699
41	U TX-AUSTIN	J W SUNKEL	JSC	R R CRAIG	NAG 9-357	7717
41	U TX-AUSTIN	D A HAMILTON	JSC	R R CRAIG	NAG 9-484	7723
41	U TX-AUSTIN	J W SUNKEL	JSC	R H BISHOP	NAG 9-526	7725
41	U TX-AUSTIN	D A HAMILTON	JSC	R R CRAIG	NAG 9-670	7731
41	U TX-AUSTIN	E L CHRISTIANSEN	JSC	E P FAHRENTHOLD	NAG 9-675	7733
41	U TX-AUSTIN	R STACHNIK	HQ	P J SHELUS	NAGW 2970	7757
41	U TX-AUSTIN	F C OWENS	HQ	W T FOWLER	NGT 00-050-573	7784
41	U TX-AUSTIN	F C OWENS	HQ	P VARGHESE	NGT 00-070-032	7798
41	U TX-AUSTIN	F C OWENS	HQ	R R CRAIG	NGT 00-070-184	7800
41	U TX-AUSTIN	H ASHKENAS	JPL	B D TAPLEY	NGT 00-070-262	7804
41	U TX-AUSTIN	E J PRIOR	LARC	D S DOLLING	NGT 00-070-270	7805
41	U TEXAS-BROWNSVILLE	G E MOSIER	GSFC	Z L XU	NAG 5-2210	7845
41	U TEXAS-SAN ANTONIO	C C CHAMIS	LERC	L BOYCE	NAG 3-867	7847
41	UNIV UTAH	Z T APPLIN	LARC	R A DECKER	NAG 1-1232	7862
41	UNIV UTAH	J H CREWS	LARC	J A NAIRN	NAS 1-18833	7876
41	U VERMONT & ST AGR C	R G KVATERNIK	LARC	W D LAKIN	NAG 1-1097	7910
41	C-WILLIAM AND MARY	E PRIOR	LARC	R A ORWOLL	NGT 00-070-293	7944
41	HAMPTON UNIV	E C YATES	LARC	H HU	NAG 1-1170	7972
41	HAMPTON UNIV	J C HARDIN	LARC	A G MIAMER	NAG 1-1237	7974
41	HAMPTON UNIV	M WALLER	LARC	H B ARMSTRONG	NCC 1-125	7979
41	OLD DOMINION UNIV	S E MASSENBERG	LARC	S N TIWARI	NAG 1-363	7991
41	OLD DOMINION UNIV	A KUMAR	LARC	S N TIWARI	NAG 1-423	7992
41	OLD DOMINION UNIV	M J WALSH	LARC	R L ASH	NAG 1-530	7994
41	OLD DOMINION UNIV	M D SALAS	LARC	R L ASH	NAG 1-633	7995
41	OLD DOMINION UNIV	J B MALONE	LARC	O A KANDIL	NAG 1-648	7996
41	OLD DOMINION UNIV	D S MILLER	LARC	O BAYSAL	NAG 1-1188	8008
41	OLD DOMINION UNIV	S K ROBINSON	LARC	G V SELBY	NAG 1-1248	8010
41	OLD DOMINION UNIV	H E JONES	LARC	A C TAYLOR	NAG 1-1265	8011
41	OLD DOMINION UNIV	S A RIZZI	LARC	C MEI	NAG 1-1358	8014
41	OLD DOMINION UNIV	D S MILLER	LARC	O BAYAAL	NAG 1-1499	8019
41	OLD DOMINION UNIV	J M SEINER	LARC	S H TIWARI	NAG 1-1518	8021
41	OLD DOMINION UNIV	E D PRIOR	LARC	B E WOLFSON	NAS 1-18584	8027
41	OLD DOMINION UNIV	E J PRIOR	LARC		NAS 1-19858	8028
41	OLD DOMINION UNIV	R E SMITH JR.	LARC	S N TIWARI	NCC 1-68	8030
41	OLD DOMINION UNIV	S P WILKINSON	LARC	G V SELBY	NCC 1-180	8037
41	UNIV VIRGINIA	G B NORTAN	LARC	J C MCDANIEL	NAG 1-795	8065
41	UNIV VIRGINIA	J H STARNES JR.	LARC	C T HERAKOVICH	NAG 1-841	8066
41	UNIV VIRGINIA	J H STARNES	LARC	A K NOOR	NAG 1-1162	8070
41	UNIV VIRGINIA	G B NORTHAM	LARC	T F GALLAGHER	NAG 1-1239	8073
41	UNIV VIRGINIA	S M ARNOLD	LERC	M PINDER	NAG 3-1377	8084
41	UNIV VIRGINIA	S R THOMAS	LERC	R H KRAUSS	NAG 3-1518	8086
41	UNIV VIRGINIA	E PRIOR	LARC	J C MCDANIEL	NGT 00-050-897	8139

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41	VA POLY INST & ST U	J H STARNES JR.	LARC	R T HAFTKA	NAG 1-168	8167
41	VA POLY INST & ST U	H M ADELMAN	LARC	R T HAFTKA	NAG 1-224	8168
41	VA PLOY INST & ST U	R J SILCOX	LARC	C R FULLER	NAG 1-390	8171
41	VA PLOY INST & ST U	J H STARNES JR	LARC	E R JOHNSON	NAG 1-537	8172
41	VA PLOY INST & ST U	J H STARNES	LARC	Z GURDAL	NAG 1-643	8173
41	VA PLOY INST & ST U	N F KNIGHT JR	LARC	O H GRIFFIN JR	NAG 1-675	8174
41	VA PLOY INST & ST U	D H RUDY	LARC	R W WALTERS	NAG 1-776	8175
41	VA PLOY INST & ST U	M P NEMETH	LARC	M W HYER	NAG 1-901	8177
41	VA PLOY INST & ST U	D D MOERDER	LARC	E M CLIFF	NAG 1-946	8178
41	VA PLOY INST & ST U	E G WAGGONER	LARC	W H MASON	NAG 1-1037	8180
41	VA PLOY INST & ST U	J H STARNES	LARC	J N REDDY	NAG 1-1085	8182
41	VA PLOY INST & ST U	T F BROOKS	LARC	W J DEVENPORT	NAG 1-1119	8184
41	VA PLOY INST & ST U	P G COEN	LARC	B GROSSMAN	NAG 1-1160	8185
41	VA PLOY INST & ST U	J H STARNES	LARC	Z GURDAL	NAG 1-1215	8188
41	VA PLOY INST & ST U	G B NORTHAM	LARC	J A SCHETZ	NAG 1-1277	8192
41	VA PLOY INST & ST U	J H STARNES	LARC	L LIBRESCU	NAG 1-1300	8195
41	VA PLOY INST & ST U	S K ROBINSON	LARC	R L SIMPSON	NAG 1-1303	8196
41	VA PLOY INST & ST U	G L FARLEY	LARC	J MORTON	NAG 1-1392	8200
41	VA PLOY INST & ST U	G L FARLEY	LARC	J MORTON	NAG 1-1393	8201
41	VA PLOY INST & ST U	K H GOODRICH	LARC	E M CLIFF	NAG 1-1405	8202
41	VA PLOY INST & ST U	J SOBIESKI	LARC	R K KAPANIA	NAG 1-1411	8203
41	VA PLOY INST & ST U	J V FOSTER	LARC	W C DURHAM	NAG 1-1449	8205
41	VA PLOY INST & ST U	M D SALAS	LARC	B GROSSMAN	NAG 1-1466	8209
41	VA PLOY INST & ST U	G B NORTHAM	LARC	T DILLER	NAG 1-1538	8213
41	VA PLOY INST & ST U	D L TWEEDT	LERC	W F NG	NAG 3-830	8215
41	VA PLOY INST & ST U	K L SUDER	LERC	W F NG	NAG 3-1211	8216
41	VA PLOY INST & ST U	A K OWEN	LERC	W F OBRIEN	NAG 3-1521	8220
41	VA PLOY INST & ST U	R P WOODWARD	LERC	W NG	NAG 3-1539	8221
41	VA PLOY INST & ST U	J M JAGIELSKI	GSFC	F C LEE	NAG 5-1232	8223
41	VA PLOY INST & ST U	E J PRIOR	LARC	UNAVAILABLE	NAS 1-18471	8226
41	VA PLOY INST & ST U	G P GURUSWAMY	ARC	R K KAPANIA	NCA 2-625	8230
41	VA PLOY INST & ST U	G S DEIWERT	ARC	J A SCHETZ	NCA 2-800	8231
41	VA PLOY INST & ST U	G P GURUSWAMY	ARC	R K KAPANIA	NCA 2-838	8232
41	VA PLOY INST & ST U	J V FOSTER	LARC	F H LUTZE	NCC 1-158	8233
41	VA PLOY INST & ST U	L D BIRCKELBAW	ARC	J R MAHAN	NCC 2-691	8234
41	VA PLOY INST & ST U	E PRIOR	LARC	D P TELIONIS	NGT 00-050-978	8243
41	VA PLOY INST & ST U	E PRIOR	LARC	R T HAFTKA	NGT 00-051-174	8248
41	UNIV WASHINGTON	C M BELCASTRO	LARC	U L LY	NAG 1-1210	8276
41	UNIV WASHINGTON	R D WITCOFSKI	LARC	A HERTZBERG	NAG 1-1288	8277
41	UNIV WASHINGTON	J GERA	ARC	U LY	NAG 2-629	8280
41	UNIV WASHINGTON	M TAKAHASHI	ARC	U LY	NAG 2-691	8282
41	UNIV WASHINGTON	W R HINGST	LERC	F B GESSNER	NAG 3-376	8287
41	UNIV WASHINGTON	G J SKOCH	LERC	J J KELLER	NAG 3-1486	8288
41	UNIV WASHINGTON	V MUKHOPADHYAY	LARC	M C BERG	NCC 1-156	8388
41	WEST VIRGINIA UNIV	M T KEMMERLY	LARC	J M KUHLMAN	NAG 1-1245	8450
41	WEST VIRGINIA UNIV	A H BOWERS	ARC	M R NAPOLITANO	NCC 2-759	8458
41	UNIV QUEENSLAND	G Y ANDERSON	LARC	R J STALKER	NAGW 674	8668
41	UNIV WATERLOO	M S LIOU	LERC	W H HUI	NAGW 3112	8672
41	UNIV LEEDS	R E SMITH	LARC	M I BLOOR	NAGW 3198	8675
41	UNIV WALES	K K GUPTA	ARC	O C ZIENKIEWICZ	NAGW 2127	8676
41	UNIV WALES	K K GUPTA	ARC	K MORGAN	NAGW 2962	8677
41	UNIV WALES	K S BEY	LARC	K MORGAN	NAGW 3290	8678
41	ISRAEL INST OF TECH	C D WIESEMAN	LARC	M KARPEL	NAGW 1708	8681
41	ISRAEL INST OF TECH	M W KEHOE	ARC	E NISSIM	NAGW 3201	8682
41	DELFT U-NETHERLANDS	J H STARNES	LARC	J ARBOCZ	NAGW 2736	8684
41	UNIV KARLSRUHE	H WRIGHT	HQ	V KUNDE	NASW 4685	8687
42	AUBURN UNIV	W A ORAN	HQ	R ASKEW	NAGW 1192	1036
42	UNIV ALA-HUNTSVILLE	F SIX	MSFC	G KARR	NAG 8-293	1103
42	UNIV ALA-HUNTSVILLE	J JOHNSON	MSFC	J C GREGORY	NAS 8-38428	1151
42	UNIV ALA-UNIV	R M NIXON	MSFC	J A MARTIN	NAG 8-901	1193



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42	ARIZONA ST U	F C OWENS	HQ	H L REED	NGT 00-050-745	1313
42	UNIV OF ARIZONA	D J FLOOD	LERC	P A FRANKEN	NAG 3-1499	1345
42	UNIV OF ARIZONA	M E NEIN	MSFC	J T MCGRAW	NAG 8-906	1377
42	UNIV OF ARIZONA	D L LINNE	LERC	K RAMOHALL	NCC 3-219	1518
42	SAN FRANCISCO ST U	G MULENBURG	ARC	P PFAELZER	NCA 2-801	1790
42	SAN JOSE ST U	R N BRETOI	ARC	E UNWIN	NCC 2-640	1840
42	STANFORD UNIV	J GERVIN	GSFC	J TIMOTHY	NAS 5-30387	1926
42	STANFORD UNIV	G S DEIWERT	ARC	D BAGANOFF	NCA 2-495	1934
42	STANFORD UNIV	G A BRIGGS	ARC	B LUSIGNAN	NCA 2-684	1951
42	STANFORD UNIV	G BRIGGS	ARC	B LUSIGNAN	NCA 2-802	1966
42	STANFORD UNIV	B P HINE	ARC	R H CANNON	NCC 2-333	1976
42	STANFORD UNIV	L G LEMKE	ARC	J D POWELL	NCC 2-528	1980
42	UNIV CALIF-BERKELEY	R DELOACH	LARC	F C HURLBUT	NAG 1-1452	2040
42	UNIV CAL-LOS ANGELES	D D MOERDER	LARC	J L SPEYER	NAG 1-1256	2319
42	COLORADO ST U	J C KOLECKI	LERC	P J WILBUR	NAG 3-776	2754
42	UNIV COL-BOULDER	G HUNOLT	GSFC	R G BARRY	NAS 5-32392	2995
42	UNIV COL-BOULDER	F C OWENS	HQ	M M MIKULAS	NGT 00-050-709	3040
42	UNIV COL-BOULDER	F C OWENS	HQ	G BORN	NGT 00-050-759	3042
42	UNIV COL-BOULDER	F C OWENS	HQ	G ROSBOROUGH	NGT 00-050-761	3043
42	UNIV COL-BOULDER	G SOFFEN	GSFC	G ROSBOROUGH	NGT 00-050-934	3053
42	GEORGE WASHINGTON U	J P ARRINGTON	LARC	H LIEBOWITZ	NCC 1-104	3192
42	GEORGE WASHINGTON U	T E HUBER	GSFC	H LIEBOWITZ	NCC 5-43	3193
42	GEORGE WASHINGTON U	T E HUBER	GSFC	G FRIEDER	NCC 5-51	3194
42	FLORIDA INST OF TECH	D HOLLAND	HQ	T D OSWALT	NGT 00-051-086	3291
42	UNIV MIAMI	D A OLMSTEAD	HQ	R EVANS	NAGW 2330	3430
42	GEORGIA INST OF TECH	D D MOERDER	LARC	P K MENON	NAG 1-1243	3487
42	GEORGIA INST OF TECH	D D MOERDER	LARC	A J CALISE	NAG 1-1257	3488
42	GEORGIA INST OF TECH	J JUANG	LARC	C H CHUANG	NAG 1-1397	3490
42	GEORGIA INST OF TECH	D D MOERDER	LARC	D H HODGES	NAG 1-1435	3492
42	GEORGIA INST OF TECH	J M HANSON	MSFC	C H CHUENG	NAG 8-921	3520
42	GEORGIA INST OF TECH	F MONTEGANI	LERC	M P KAMAT	NGT 00-050-981	3556
42	NORTHWESTERN UNIV	J T WANG	LARC	T BELYTSCHKO	NAG 1-1206	3733
42	UNIV ILLINOIS URBANA	D C BYERS	LERC	C E SINGER	NAG 3-1037	3895
42	UNIV ILLINOIS URBANA	J M SANKOVIC	LERC	R L BURTON	NAG 3-1360	3903
42	PURDUE UNIV	P A COOPER	LARC	R E SKELTON	NAG 1-1306	3997
42	UNIV EVANSVILLE	R R TACINA	LERC	B RILEY	NAG 3-746	4070
42	UNIV NOTRE DAME	R M STUBBS	LERC	J M POWERS	NAG 3-1335	4074
42	UNIV NOTRE DAME	R M STUBBS	LERC	J M POWERS	NCC 3-325	4086
42	IOWA ST U	D D MOERDER	LARC	D LU	NAG 1-1255	4091
42	IOWA ST U	W T SUIT	LARC	B L PIERSON	NAG 1-1304	4093
42	WICHITA ST U	E PRIOR	LARC	M PAPADAKIS	NGT 00-050-984	4239
42	UNIV KENTUCKY	T A KASHANGAKI	LARC	S W SMITH	NAG 1-1246	4242
42	UNIV LOUISVILLE	L W TAYLOR	LARC	J H LILLY	NAG 1-1446	4249
42	TULANE UNIV	R C MONTGOMERY	LARC	E BARBIERI	NAG 1-1270	4295
42	UNIV NEW ORLEANS	D M MCGLATHERY	MSFC	G E IOUP	NAS 8-38841	4305
42	UNIV MD-COLLEGE PARK	J E NEALY	LARC	M J LEWIS	NAG 1-1285	4448
42	UNIV MD-COLLEGE PARK	L HOLCOMB	HQ	D AKIN	NAGW 2245	4550
42	UNIV MD-COLLEGE PARK	S H MORGAN JR.	MSFC	H J PAIK	NAS 8-38137	4593
42	UNIV MD-COLLEGE PARK	F C OWENS	HQ	I CHOPRA	NGT 00-050-744	4616
42	BRANDEIS UNIV	D HOLLAND	HQ	D H ROBERTS	NGT 00-051-078	4668
42	MASS INST OF TECH	R S TAYLOR	LARC	W E VANDER VELDE	NAG 1-968	4757
42	MASS INST OF TECH	L G CLARK	LARC	E CROWLEY	NAS 1-18690	4922
42	MASS INST OF TECH	R S TAYLOR	LARC	A H VON FLOTOW	NAS 1-19381	4923
42	MASS INST OF TECH	K OGALVIE	GSFC	J LAZARUS	NAS 5-30550	4926
42	MASS INST OF TECH	M MOORE	ARC	G WALL	NGT 00-050-940	4973
42	WOODS HOLE OCEAN I	G SOFFEN	GSFC	W J PLANT	NAS 5-30921	5050
42	U MICHIGAN-ANN ARBOR	S M JOSHI	LARC	N H MCCLAMROCH	NAG 1-1419	5111
42	U MICHIGAN-ANN ARBOR	R L HARRISON	ARC	C W CLIPSON	NAG 2-635	5120
42	U MICHIGAN-ANN ARBOR	J H KERR	MSFC	P M BANKS	NAS 8-39381	5214
42	U MICHIGAN-ANN ARBOR	H M YEE	ARC	P L ROE	NCA 2-521	5215

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42	U MICHIGAN-ANN ARBOR	J S SALUTE	ARC	J F VESECKY	NCA 2-586	5217
42	U MICHIGAN-ANN ARBOR	F C OWENS	HQ	P L ROE	NGT 00-050-713	5236
42	U MICHIGAN-ANN ARBOR	E J PRIOR	LARC	A M WAAS	NGT 00-050-977	5240
42	U MINN-MNPLS-ST PAUL	E S ARMSTRONG	LARC	G J BALAS	NAG 1-1254	5268
42	U MINN-MNPLS-ST PAUL	M L KAISER	GSFC	P KELLOG	NAS 5-33048	5312
42	MISSISSIPPI STATE U	F C OWENS	HQ	K KOENIG	NGT 00-050-694	5362
42	PRINCETON UNIV	W T SUIT	LARC	K D MEASE	NAG 1-1501	5622
42	PRINCETON UNIV	L R BALKANY	LERC	K D MEASE	NAG 3-1060	5633
42	PRINCETON UNIV	D C BYERS	LERC	R G JAHN	NAG 3-1064	5634
42	NEW MEX ST U-LAS CR	M E NEIN	MSFC	J O BURNS	NAG 8-939	5742
42	UNIV NEW MEX	M E NEIN	MSFC	K M CHUA	NAG 8-933	5790
42	UNIV NEW MEX	M E NEIN	MSFC	J T MCGRAW	NAG 8-940	5791
42	COLUMBIA UNIV	J N JUANG	LARC	R W LONGMAN	NAG 1-649	5839
42	CORNELL UNIV	F C OWENS	HQ	S B POPE	NGT 00-050-842	6016
42	CORNELL UNIV	F C OWENS	HQ	M C KELLEY	NGT 00-070-219	6028
42	ST U OF NY-BUFFALO	T H STENGLE	GSFC	D J MOOK	NAG 5-2181	6144
42	NO CAROLINA A&T ST U	R C MONTGOMERY	LARC	E G ABU-SABA	NAG 1-997	6257
42	NC ST U.-RALEIGH	R C MONTGOMERY	LARC	L SILVERBERG	NAG 1-977	6278
42	NC ST U.-RALEIGH	J JUANG	LARC	G K LEE	NAG 1-1136	6281
42	NC ST U.-RALEIGH	J JUANG	LARC	G K LEE	NAG 1-1283	6285
42	NC ST U.-RALEIGH	L W TAYLOR	LARC	L SHARPE	NAG 1-1436	6288
42	NC ST U.-RALEIGH	J STANLEY	JSC	L SILVERBERG	NAG 9-594	6295
42	NC ST U.-RALEIGH	G S DEIWERT	ARC	G V CANDLER	NCA 2-519	6307
42	NC ST U.-RALEIGH	W T DAVIS	LARC	G D WALBERG	NCC 1-168	6318
42	NC ST U.-RALEIGH	H W STONE	LARC	G D WALBERG	NCC 1-185	6322
42	UNIV NC-CHARLOTTE	E S ARMSTRONG	LARC	Y P KAKAD	NAG 1-1414	6348
42	UNIV NC-CHARLOTTE	T D SWANSON	GSFC	R H KIM	NAG 5-1503	6350
42	CENTRAL ST U-OHIO	D E LACY	LERC	C B OKHIO	NAG 3-1517	6477
42	CLEVELAND ST U	J P GYEKENYESI	LERC	J H HEMANN	NAG 3-1216	6487
42	CLEVELAND ST U	T MROZ	LERC	P V HERMANN	NCC 3-143	6507
42	OHIO ST U	F M CURRAN	LERC	P J TURCHI	NAG 3-1465	6582
42	UNIV AKRON	L BERKE	LERC	T Y CHANG	NAG 3-1350	6667
42	UNIV CINCINNATI	J JUANG	LARC	T WILLIAMS	NAG 1-1284	6693
42	UNIV CINCINNATI	P G MAGHAMI	LARC	T WILLIAMS	NAG 1-1418	6694
42	UNIV CINCINNATI	F MONTAGANI	LERC	S G RUBIN	NGT 00-070-278	6727
42	UNIV TOLEDO	J K LYTLE	LERC	K J DEWITT	NAG 3-1165	6742
42	UNIV TOLEDO	S M ARNOLD	LERC	T G KEITH	NCC 3-120	6765
42	UNIV TOLEDO	R M STUBBS	LERC	K J DEWITT	NCC 3-171	6767
42	UNIV TOLEDO	R M STUBBS	LERC	K J DEWITT	NCC 3-229	6771
42	OKLAHOMA ST U	F C OWENS	HQ	K PERRY	NGT 00-050-766	6787
42	OKLAHOMA ST U	F C OWENS	HQ	L BARNES	NGT 00-050-767	6788
42	LEHIGH UNIV	J JUANG	LARC	M CHEW	NAG 1-1477	6921
42	PA ST U.-UNIV. PARK	K B LIM	LARC	A RAY	NAG 1-1417	6951
42	PA ST U.-UNIV. PARK	K J BREISACHER	LERC	G S DULIKRAVICH	NAG 3-1341	6974
42	PA ST U.-UNIV. PARK	R DONNELLY	GSFC	F CORDORA	NAS 5-31787	7046
42	TENNESSEE ST U	J N JUANG	LARC	L KEEL	NAG 1-863	7285
42	TENNESSEE ST U	H P FRISCH	GSFC	L KEEL	NAG 5-2109	7290
42	UNIV TENN-KNOXVILLE	F M CURRAN	LERC	D KEEFER	NAG 3-1159	7303
42	RICE UNIV	J M HANSON	MSFC	A MIELE	NAG 8-187	7410
42	TEXAS TECH UNIV	F M CURRAN	LERC	E A O'HAIR	NAG 3-1172	7580
42	U TX-AUSTIN	J TELES	GSFC	B D TAPLEY	NAG 5-1970	7712
42	U TX-AUSTIN	J REUTER	JSC	D TESAR	NAG 9-411	7719
42	U TX-AUSTIN	G SOFFEN	GSFC	B D TAPIEY	NGT 00-050-760	7789
42	U TX-AUSTIN	F C OWENS	HQ	R R CRAIG	NGT 00-070-212	7801
42	OLD DOMINION UNIV	J N JUANG	LARC	M CHEW	NAG 1-1117	8005
42	VA PLOY INST & ST U	J P WILLIAMS	LARC	L MEIROVITCH	NAG 1-225	8169
42	VA PLOY INST & ST U	S S WELCH	LARC	D K LINDNER	NAG 1-1006	8179
42	VA PLOY INST & ST U	S W WELCH	LARC	D K LINDNER	NAG 1-1165	8186
42	VA PLOY INST & ST U	D D MOERDER	LARC	E M CLIFF	NAG 1-1244	8189
42	VA PLOY INST & ST U	S S WELCH	LARC	G INDEBETOUW	NAG 1-1363	8199

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42	YORK UNIV	J K KALINOWSKI	GSFC	J J CALDWELL	NAS 5-30294	8673
42	UNIV STUTTGART	F M CURRAN	LERC	H O SCHRADER	NAGW 1736	8686
43	AUBURN UNIV	D L BRITTON	LERC	B J TATARCHUK	NAG 3-1154	1026
43	UNIV OF ARIZONA	D K RUSSELL	HQ	W RASMUSSEN	NGT 00-070-256	1556
43	STANFORD UNIV	M L PUSEY	MSFC	R S FEIGELSON	NAG 8-920	1891
43	UNIV CALIF-DAVIS	H D VITAGLIANO	GSFC	B G HIGGINS	NAG 5-1439	2228
43	UNIV CAL-SAN DIEGO	D R SCHRYER	LARC	R K HERZ	NAG 1-1051	2471
43	UNIV COL-BOULDER	J A SALZMAN	LERC	R H DAVIS	NAG 3-993	2813
43	UNIV COL-BOULDER	R DEWITT	LERC	K TIMMERHAUS	NAG 3-1018	2814
43	UNIV COL-BOULDER	J A SALZMAN	LERC	R H DAVIS	NAG 3-1389	2820
43	UNIV COL-BOULDER	T Y MILLER	MSFC	R H DAVIS	NAG 8-945	2891
43	UNIV COL-BOULDER	F C OWENS	HQ	R H DAVIS	NGT 00-050-367	3029
43	UNIV COL-BOULDER	F C OWENS	HQ	S BIRINGEN	NGT 00-050-446	3030
43	UNIV CONNECTICUT	F C OWENS	HQ	C S SUNG	NGT 00-070-214	3108
43	YALE UNIV	F C OWENS	HQ	D E ROSNER	NGT 00-050-377	3133
43	FLORIDA ATLANTIC U	L MACDOWELL	KSC	S M LIPKA	NAG10-79	3274
43	FLORIDA INST OF TECH	W E LARSON	KSC	R G BARILE	NAG10-98	3287
43	UNIV OF CENTRAL FLA	A L BAIN	KSC	D L BLOCK	NAG10-123	3357
43	UNIV SOUTH FLORIDA	H L NGUYEN	LERC	S J BEN YING	NAG 3-1112	3449
43	UNIV ILLINOIS URBANA	M PUSEY	MSFC	E B VAN SWOL	NAG 8-976	3920
43	UNIV ILLINOIS URBANA	B CARPENTER	HQ	F B VAN SWOL	NGT 00-051-064	3957
43	IOWA ST U	E L FORCE	ARC	R C SEAGRAVE	NAG 2-722	4096
43	JOHNS HOPKINS UNIV	G LASANE	HQ	W M SALTZMAN	NGT 00-051-134	4423
43	MASS INST OF TECH	B FACEMIRE	MSFC	T A HATTON	NAG 8-951	4848
43	MASS INST OF TECH	S L LEHOCZKY	MSFC	R A BROWN	NAG 8-961	4849
43	MASS INST OF TECH	F R SZOFRAN	MSFC	R A BROWN	NAG 8-962	4850
43	UNIV MASS-AMHERST	W M KNOTT	KSC	K A COREY	NAG10-91	5023
43	MICHIGAN TECH U	J E FINN	ARC	D W HAND	NAG 2-820	5083
43	MISSISSIPPI STATE U	C G UPTON	MSFC	W B HALL	NAG 8-936	5354
43	UNIV MISSOURI-ROLLA	G L PELLETT	LARC	K M ISAAC	NAG 1-861	5389
43	UNIV NEW HAMP-DURHAM	J M HOELL	LARC	R W TALBOT	NAG 1-1233	5544
43	UNIV NEW HAMP-DURHAM	G LESANE	HQ	P GRILL	NGT 00-051-144	5611
43	PRINCETON UNIV	R S SNYDER	MSFC	D A SAVILLE	NAG 8-749	5656
43	PRINCETON UNIV	R C DARTY	MSFC	D A SAVILLE	NAG 8-969	5658
43	PRINCETON UNIV	B CARPENTER	HQ	D A SAVILLE	NGT 00-051-073	5683
43	RUTGERS ST U-N BRNSK	D A HOLLAND	HQ	J M WIENCEK	NGT 00-051-150	5702
43	CLARKSON UNIV	R L THOMPSON	LERC	R S SUBRAMANIAN	NAG 3-1470	5827
43	CORNELL UNIV	J A SALZMAN	LERC	P H STEEN	NAG 3-801	5937
43	CORNELL UNIV	F C OWENS	HQ	D A HAMMER	NGT 00-050-516	6011
43	NC ST U.-RALEIGH	E L FORCE	ARC	D F OLLIS	NAG 2-684	6289
43	CASE WESTERN RES U	M A REID	LERC	B D CAHAN	NAG 3-1111	6378
43	CASE WESTERN RES U	J K SUTTER	LERC	E BAER	NCC 3-322	6457
43	CLEVELAND ST U	S K RUTLEDGE	LERC	P D HAMBOURGER	NCC 3-19	6494
43	CLEVELAND ST U	P R PROKOPIUS	LERC	G COULMAN	NCC 3-23	6495
43	CLEVELAND ST U	F I HURWITZ	LERC	A H ANDRIST	NCC 3-63	6497
43	CLEVELAND ST U	K W STREET	LERC	D B SHAH	NCC 3-301	6525
43	UNIV TOLEDO	F C OWENS	HQ	K J DEWITT	NGT 00-050-371	6778
43	PA ST U.-UNIV. PARK	M STUCKER	MSFC	N J SALAMON	NAG 8-879	7015
43	PA ST U.-UNIV. PARK	D KWAK	ARC	J M TARBELL	NCA 2-544	7053
43	PA ST U.-UNIV. PARK	D K RUSSELL	HQ	J FRANGOS	NGT 00-070-328	7086
43	PRAIRIE VIEW A&M U	E EMANUEL	JSC	K WALTER	NAG 9-499	7392
43	RICE UNIV	F C OWENS	HQ	L V MCINTIRE	NGT 00-050-557	7437
43	RICE UNIV	F C OWENS	HQ	S H DAVIS	NGT 00-050-735	7442
43	TEXAS A&M UNIV	P R PROKOPIUS	LERC	S SRINIVASAN	NAG 3-1255	7476
43	TEXAS A&M UNIV	E C DARCY	JSC	T V NGUYEN	NAG 9-514	7505
43	TEXAS A&M UNIV	C E VEROSTKO	JSC	A J APPLEBY	NAG 9-517	7506
43	TEXAS A&M UNIV	E DARCY	JSC	R W FLUMERFELT	NAG 9-596	7511
43	TEXAS A&M UNIV	P L EVANICH	HQ	J O BROCKIS	NAGW 1779	7520
43	TEXAS A&M UNIV-SYSTM	F C OWENS	HQ	A LEFTON	NGT 00-070-186	7568
43	UNIV HOUSTON	J B MCQUILLEN	LERC	A E DUKLER	NAG 3-510	7585

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43	UNIV HOUSTON	K MILLER	JSC	A F DUKLER	NAG 9-674	7617
43	UNIV HOUSTON	F MONTEGANI	LERC	A E DUKLER	NGT 00-051-159	7632
43	HAMPTON UNIV	G B NORTHAM	LARC	A ADEYIGA	NAG 1-767	7963
43	OLD DOMINION UNIV	R M BAUCOM	LARC	J M MARCHELLO	NAG 1-1067	8003
43	UNIV VIRGINIA	F C OWENS	HQ	L U LILLELEHT	NGT 00-050-334	8125
43	UNIV VIRGINIA	M BURRELL	GSFC	L U LILLELEHET	NGT 00-051-094	8148
43	UNIV VIRGINIA	F C OWENS	HQ	J L HUDSON	NGT 00-070-173	8156
43	VA PLOY INST & ST U	E PRIOR	LARC	G L WILKES	NGT 00-051-117	8247
43	UNIV WASHINGTON	J K ALEXANDER	HQ	E J DAVIS	NGT 00-051-001	8423
44	COLORADO ST U	J K ALEXANDER	HQ	W Z SADEH	NGT 00-050-929	2787
44	UNIV COL-Boulder	M C LEE	HQ	S STURE	NAGW 2110	2923
44	MASS INST OF TECH	G SOFFEN	GSFC	D ENTEKHABI	NGT 00-050-925	4972
44	MASS INST OF TECH	G LESANE	HQ	D ENTEKHABI	NGT 00-051-158	4976
44	NEW MEX ST U-LAS CR	F C OWENS	HQ	R B JACQUEZ	NGT 00-070-114	5769
44	NC ST U.-RALEIGH	F C OWENS	HQ	W J RASDORF	NGT 00-050-591	6326
44	UNIV PITTSBURGH	R BIVINS	HQ	P A MCWILLIAMS	NASW 4204	7123
44	VANDERBILT UNIV	E SCHWARTZ	HQ	T A CRUSE	NGT 00-050-702	7355
44	PRAIRIE VIEW A&M U	K E HENDERSON	JSC	R RADHA	NAG 9-667	7396
44	TEXAS A&M UNIV	F C OWENS	HQ	P N ROSCHKE	NGT 00-070-221	7549
44	UNIV HOUSTON	R L SAUER	JSC	J M SYMONS	NAG 9-284	7588
44	UNIV HOUSTON	S W MILLARD	JSC	M W O'NEILL	NAG 9-589	7607
44	UNIV HOUSTON	K HENDERSON	JSC	L BELL	NAG 9-662	7615
44	OLD DOMINION UNIV	O O STORAASLI	LARC	D T NGUYEN	NAG 1-858	7998
44	OLD DOMINION UNIV	R E GILLIAN	LARC	N A SOBH	NAG 1-1291	8012
44	OLD DOMINION UNIV	F C OWENS	HQ	D T NQUYEN	NGT 00-070-126	8048
44	UNIV VIRGINIA	H D CARDEN	LARC	A K NOOR	NAG 1-1197	8072
44	UNIV VIRGINIA	F C OWENS	HQ	W D PILKEY	NGT 00-070-230	8160
45	AUBURN UNIV	R L CATALDO	LERC	L B GORDON	NAG 3-1055	1025
45	AUBURN UNIV	R L CATALDO	LERC	M F ROSE	NAG 3-1330	1027
45	AUBURN UNIV	E D BAUMANN	LERC	R W JOHNSON	NCC 3-175	1040
45	AUBURN UNIV	F C OWENS	HQ	Y TZENG	NGT 00-050-354	1041
45	AUBURN UNIV	F C OWENS	HQ	M E BAGINSKI	NGT 00-050-435	1043
45	AUBURN UNIV	F C OWENS	HQ	Y TZENG	NGT 00-050-531	1044
45	AUBURN UNIV	F C OWENS	HQ	S RAO	NGT 00-050-546	1045
45	AUBURN UNIV	E PRIOR	LARC	S RAO	NGT 00-050-974	1051
45	TUSKEGEE UNIV	G H FICHTL	MSFC	C V DORESWAMY	NAG 8-40	1060
45	UNIV ALA-HUNTSVILLE	T EDGE	MSFC	F D HO	NAG 8-108	1094
45	ARIZONA ST U	M C GILREATH	LARC	C A BALANIS	NAG 1-562	1249
45	ARIZONA ST U	G C BARBER	LARC	C A BALANIS	NAG 1-1082	1252
45	ARIZONA ST U	G C BARBER	LARC	C A BALANIS	NAG 1-1183	1256
45	ARIZONA ST U	G R SUNDBERG	LERC	G G KARADY	NAG 3-1139	1262
45	UNIV OF ARIZONA	G L UNGER	GSFC	J W BURKE	NAG 5-1346	1352
45	UNIV OF ARIZONA	F C OWENS	HQ	J A REAGAN	NGT 00-050-704	1539
45	UNIV OF ARIZONA	J ALEXANDER	HQ	P N SLATER	NGT 00-050-920	1546
45	UNIV OF ARIZONA	E J PRIOR	LARC	J REAGAN	NGT 00-051-111	1550
45	UNIV ARK-LITTLE ROCK	R F PUESCHEL	ARC	M K MAZUMDER	NAG 2-689	1564
45	UNIV ARK-LITTLE ROCK	A JOYCE	SSC	M K HUDSON	NGT 00-050-886	1568
45	UNIV ARK-LITTLE ROCK	A JOYCE	SSC	M K HUDSON	NGT 00-051-013	1569
45	CALIF INST OF TECH	F C OWENS	HQ	J C DOYLE	NGT 00-050-742	1688
45	CALIF INST OF TECH	H ASHKENAS	JPL	D RUFLEDGE	NGT 00-070-265	1700
45	STANFORD UNIV	P M GOORJIAN	ARC	R W MACCORMACK	NAG 2-686	1872
45	STANFORD UNIV	C H SCHULBACH	ARC	M J FLYNN	NAG 2-842	1876
45	STANFORD UNIV	R C OEFTERING	LERC	B T KHURI-YAKUR	NAG 3-1253	1880
45	STANFORD UNIV	P H SMITH	HQ	A M PETERSON	NAGW 1910	1900
45	STANFORD UNIV	W J WAGNER	HQ	P H SCHERRER	NAGW 2502	1910
45	STANFORD UNIV	C SCHULBACH	ARC	B WIDROW	NCA 2-680	1950
45	STANFORD UNIV	F C OWENS	HQ	G F FRANKLIN	NGT 00-050-431	1997
45	STANFORD UNIV	F C OWENS	HQ	B WIDROW	NGT 00-050-642	2001
45	STANFORD UNIV	F MONTEGANI	LERC	U INAN	NGT 00-050-680	2002
45	STANFORD UNIV	F C OWENS	HQ	U S INAN	NGT 00-050-790	2005

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45	STANFORD UNIV	F C OWENS	HQ	J F VESECKY	NGT 00-070-188	2017
45	STANFORD UNIV	P HUNTER	HQ	G TYLER	NGT 00-070-249	2020
45	STANFORD UNIV	D K RUSSELL	HQ	A A PETERSON	NGT 00-070-340	2026
45	STANFORD UNIV	D K RUSSELL	HQ	A PETERSON	NGT 00-070-344	2028
45	UNIV CALIF-DAVIS	J M BUDINGER	LERC	K FEHER	NAG 3-1007	2226
45	UNIV CALIF-DAVIS	J M BUDINGER	LERC	G R REDINEO	NAG 3-1166	2227
45	UNIV CALIF-DAVIS	P GOORJIAN	ARC	A KNOESEN	NCA 2-780	2263
45	UNIV CAL-LOS ANGELES	M C GILREATH	LARC	N G ALEXOPOULOS	NAG 1-1349	2320
45	UNIV CAL-SAN DIEGO	F C OWENS	HQ	P M CHAU	NGT 00-050-570	2592
45	U CAL-SANTA BARBARA	A WOO	ARC	H LEE	NCA 2-668	2651
45	UNIV SOUTHERN CALIF	E A BOBINSKY	LERC	R M LEAHY	NAG 3-1279	2707
45	COLORADO ST U	F C OWENS	HQ	M THOMPSON	NGT 00-050-848	2786
45	UNIV COL-BOULDER	E A BOBINSKY	LERC	J N PELTON	NAG 3-1383	2819
45	UNIV COL-BOULDER	J W SUNKEL	JSC	K C PARK	NAG 9-574	2893
45	UNIV COL-BOULDER	V C VANDERBILT	ARC	B J VANZEGHHBROECK	NCA 2-788	3003
45	UNIV COL-BOULDER	F C OWENS	HQ	K M JOHNSON	NGT 00-050-592	3035
45	UNIV COL-BOULDER	J T LYNCH	HQ	C E FOSHA	NGT 00-070-291	3069
45	UNIV COL-BOULDER	F MONTEGRANI	LERC	D G MEYER	NGT 00-070-301	3070
45	UNIV COL-DENVER	D I SOLOWAY	LARC	J T BIALASIEWICZ	NAG 1-1444	3075
45	UNIV CONNECTICUT	T KOSTIUK	GSFC	P K CHEO	NAG 5-2248	3105
45	UNIV DELAWARE	H LUM	ARC	D L MILLS	NAG 2-638	3146
45	UNIV DELAWARE	H ASHKERAS	JPL	K HUNSPERGER	NGT 00-050-889	3164
45	HOWARD UNIV	J A POWELL	LERC	G L HARRIS	NAG 3-1406	3199
45	HOWARD UNIV	J F SELLERS	LERC	J A MOMOH	NAG 3-1426	3200
45	HOWARD UNIV	A S BURGESS	GSFC	R CHOWDHARY	NAG 5-1049	3204
45	HOWARD UNIV	D B MOTT	GSFC	G L HARRIS	NAG 5-1127	3206
45	HOWARD UNIV	H ASKHENAS	JPL	J A MOMEH	NGT 00-050-973	3214
45	CATHOLIC UNIV	T PREMACK	GSFC	C C NGUYEN	NAG 5-780	3222
45	UNIV DIST COLUMBIA	C ALLEN	GSFC	S LAKEOU	NAG 5-2348	3237
45	FLORIDA INST OF TECH	L F LOLLAR	MSFC	R A MORRIS	NAS 8-39385	3289
45	UNIV OF CENTRAL FLA	N E SLIWA	KSC	J M RAGUSA	NAG10-116	3351
45	UNIV OF CENTRAL FLA	J E HANLON	KSC	C G CHRISTODOULOU	NAG10-126	3358
45	GEORGIA INST OF TECH	P S YEHE	GSFC	M J SMITH	NAG 5-2187	3511
45	GEORGIA INST OF TECH	L G CLARK	LARC	M D BLUE	NAS 1-14654	3527
45	GEORGIA INST OF TECH	F C OWENS	HQ	G P RODRIQUE	NGT 00-050-526	3549
45	GEORGIA INST OF TECH	J ALEXANDER	HQ	A J GASIEWSKI	NGT 00-050-903	3555
45	GEORGIA INST OF TECH	F SIX	MSFC	W T RHODES	NGT 00-051-042	3557
45	GEORGIA INST OF TECH	D K RUSSELL	HQ	R GERHARDT	NGT 00-070-356	3566
45	MERCER UNIV	D STILLWELL	JSC	E M O'BRIEN	NAG 9-564	3582
45	MERCER UNIV	D STILWELL	JSC	E M O'BRIEN	NAG 9-645	3583
45	SPELMAN COLLEGE	B WHITE	HQ	E FALCONER	NGT 00-090-003	3587
45	UNIV IDAHO	W MILLER	GSFC	G K MAKI	NAS 5-26534	3714
45	UNIV ILLINOIS-CHICGO	A C WOO	ARC	P L USLENGHI	NAG 2-544	3872
45	UNIV ILLINOIS-CHICGO	A C WOO	ARC	K R UMASHANKAR	NAG 2-868	3873
45	UNIV ILLINOIS URBANA	H LOMAX	ARC	J E SCHUTT-AINE	NAG 2-823	3890
45	UNIV ILLINOIS URBANA	A C WOO	ARC	W C CHEW	NAG 2-871	3893
45	UNIV ILLINOIS URBANA	A J ZAMAN	LERC	S W LEE	NAG 3-1474	3905
45	UNIV ILLINOIS URBANA	A WOO	ARC	P H LEE	NCA 2-550	3937
45	UNIV ILLINOIS URBANA	A WOO	ARC	S W LEE	NCA 2-666	3939
45	UNIV ILLINOIS URBANA	A C WOO	ARC	S W LEE	NCA 2-667	3940
45	UNIV ILLINOIS URBANA	G FUJIKAWA	LERC	S W LEE	NCC 3-156	3945
45	UNIV ILLINOIS URBANA	R Q LEE	LERC	S W LEE	NCC 3-216	3946
45	UNIV ILLINOIS URBANA	F C OWENS	HQ	M J KUSHNER	NGT 00-070-107	3959
45	INDIANA U-SOUTH BEND	P HUNTER	HQ	A ECER	NGT 00-051-172	3987
45	PURDUE UNIV	V VANDERBILT	ARC	L BIEHL	NCA 2-751	4044
45	PURDUE UNIV	F MONTEGANI	LERC	J L GRAY	NGT 00-050-867	4056
45	PURDUE UNIV	J K ALEXANDER	HQ	H J SIEGEL	NGT 00-050-961	4059
45	IOWA ST U	M NAMKUNG	LARC	W L LORD	NAG 1-1129	4090
45	IOWA ST U	E PRIOR	LARC	W LORD	NGT 00-050-991	4133
45	IOWA ST U	E PRIOR	LARC	W LORD	NGT 00-051-004	4134

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45	IOWA ST U	G SOFFEN	GSFC	J P BASART	NGT 00-051-020	4136
45	UNIV KANSAS	F C OWENS	HQ	R K MOORE	NGT 00-050-464	4227
45	UNIV KANSAS	F C OWENS	HQ	D HAVERKAMP	NGT 00-050-604	4229
45	UNIV KANSAS	F C OWENS	HQ	P GOGINENI	NGT 00-050-628	4230
45	UNIV KANSAS	G SOFFEN	GSFC	S P GOGINENI	NGT 00-051-021	4233
45	UNIV KANSAS	G LESANE	HQ	R K MOORE	NGT 00-051-123	4234
45	COLBY COLLEGE	D B SNYDER	LERC	R N METZ	NAG 3-576	4312
45	CAPITOL COLLEGE	D MENCHAN	GSFC	J JARRELL	NGT 00-090-063	4319
45	JOHNS HOPKINS UNIV	M A KRAINAK	GSFC	F M DAVIDSON	NAG 5-1510	4335
45	JOHNS HOPKINS UNIV	J B ABSHIRE	GSFC	F E DAVIDSON	NAG 5-1521	4336
45	JOHNS HOPKINS UNIV	B ABSHIRE	GSFC	M DAVIDSON	NAG 5-2232	4363
45	JOHNS HOPKINS UNIV	A J MARTINO	GSFC	F M DAVIDSON	NAS 5-32029	4418
45	JOHNS HOPKINS UNIV	F L PITTS	LARC	G E MASSON	NSG-1442	4424
45	UNIV MD-COLLEGE PARK	J M VRANISH	GSFC	J LONCARIC	NAG 5-2029	4511
45	UNIV MD-COLLEGE PARK	D B MOTT	GSFC	A A ILIADIS	NAG 5-2069	4512
45	UNIV MD-COLLEGE PARK	B MOTT	GSFC	A A ILIADIS	NAG 5-2340	4521
45	UNIV MD-COLLEGE PARK	D M CORNWALL	GSFC	M DAGENAIS	NAG 5-2359	4523
45	UNIV MD-COLLEGE PARK	J K ALEXANDER	HQ	J P RICHARD	NAGW 1614	4536
45	UNIV MD-COLLEGE PARK	G SOFFEN	GSFC	J JAJA	NGT 00-050-951	4622
45	UNIV MD-COLLEGE PARK	G SOFFEN	GSFC	M DAGENAIS	NGT 00-051-017	4624
45	U MD-EASTERN SHORE	D MENCHAN	GSFC	R E MULLER	NCA 5-99	4631
45	U MD BALTIMORE CNTY	B D SEERY	GSFC	J M MORRIS	NAG 5-2194	4633
45	MASS INST OF TECH	M D KANKAM	LERC	S D UMANS	NAG 3-1510	4799
45	UNIV MASS-AMHERST	R W LAWRENCE	LARC	C T SWIFT	NAG 1-1318	4999
45	UNIV MASS-AMHERST	H LUM	ARC	I CHLAMTAC	NAG 2-578	5000
45	UNIV MASS-AMHERST	J K ALEXANDER	HQ	K S YNGVESSON	NAGW 1659	5013
45	UNIV MASS-AMHERST	F C OWENS	HQ	R E MCINTOSH	NGT 00-050-485	5029
45	UNIV MASS-AMHERST	F C OWENS	HQ	C T SWITT	NGT 00-050-606	5031
45	UNIV MASS-AMHERST	F C OWENS	HQ	R E MCINTOSH	NGT 00-050-772	5032
45	UNIV MASS-AMHERST	F C OWENS	HQ	K M LAU	NGT 00-050-828	5033
45	UNIV MASS-AMHERST	F C OWENS	HQ	K M LAU	NGT 00-070-234	5034
45	MICHIGAN ST U	R J NOWAK	LARC	M ASLAM	NAG 1-1328	5069
45	MICHIGAN ST U	C R MERCER	LERC	H J SCHOCK	NAG 3-1304	5072
45	U MICHIGAN-ANN ARBOR	F B BECK	LARC	J L VOLAKIS	NAG 1-1478	5113
45	U MICHIGAN-ANN ARBOR	A C WOO	ARC	J L VOLAKIS	NAG 2-541	5119
45	U MICHIGAN-ANN ARBOR	A C WOO	ARC	J L VOLAKIS	NAG 2-866	5123
45	U MICHIGAN-ANN ARBOR	S A ALTEROVITZ	LERC	P K BHATTACHARGA	NAG 3-988	5124
45	U MICHIGAN-ANN ARBOR	A C WOO	ARC	J L VOLAKIS	NCA 2-543	5216
45	U MICHIGAN-ANN ARBOR	A C WOO	ARC	J L VOLAKIS	NCA 2-653	5218
45	U MICHIGAN-ANN ARBOR	A C WOO	ARC	J L VOLAKIS	NCA 2-839	5220
45	U MICHIGAN-ANN ARBOR	F C OWENS	HQ	N H MCCLAMROCH	NGT 00-050-553	5232
45	U MICHIGAN-ANN ARBOR	F SIX	MSFC	B E GILCHRIST	NGT 00-051-166	5246
45	WAYNE ST U	D J BRINKER	LERC	J R WOODYARD	NAG 3-833	5252
45	WAYNE ST U	D J BRINKER	LERC	J R WOODYARD	NAG 3-1281	5255
45	MISSISSIPPI STATE U	H L THOMAS	MSFC	F M INGELS	NAG 8-104	5351
45	MISSISSIPPI STATE U	G L SETTLE	MSFC	R J MOORHEAD	NAG 8-866	5353
45	UNIV MISSISSIPPI-U	M W SUITS	MSFC	R HICKLING	NAS 8-39745	5371
45	U NEBRASKA-LINCOLN	D A JAWORSKE	LERC	J A WOOLLAM	NAG 3-95	5477
45	U NEBRASKA-LINCOLN	W A WHYTE	LERC	K SAYOOD	NAG 3-806	5479
45	U NEBRASKA-LINCOLN	P SHU YEH	GSFC	K SAYOOD	NAG 5-1612	5483
45	U NEBRASKA-LINCOLN	F MONTEGANI	LERC	K SAVOOD	NGT 00-070-280	5498
45	DARTMOUTH COLLEGE	F C OWENS	HQ	K C JEZEK	NGT 00-050-625	5538
45	DARTMOUTH COLLEGE	F C OWENS	HQ	B SONNERUP	NGT 00-050-798	5539
45	NEW JERSEY INST TECH	E A BOBINSKY	LERC	N ANSARI	NAG 3-1244	5615
45	PRINCETON UNIV	R SYNDER	MSFC	D SAVILLE	NAG 8-878	5657
45	RUTGERS ST U-N BRNSK	F C OWENS	HQ	S AMAREL	NGT 00-070-205	5703
45	NEW MEX INST MINING	R BLAKESLEE	MSFC	M BROOK	NAG 8-66	5726
45	NEW MEX ST U-LAS CR	G SOFFEN	GSFC	W P OSBORNE	NGT 00-050-898	5768
45	UNIV NEW MEX	F C OWENS	HQ	J R MCNEIL	NGT 00-050-584	5804
45	CITY COL OF NEW YORK	B S GOOD	LERC	R R ALFANO	NAG 3-1490	5815

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45	CORNELL UNIV	F C OWENS	HQ	M C KELLEY	NGT 00-070-117	6026
45	CORNELL UNIV	F C OWENS	HQ	M C KELLEY	NGT 00-070-217	6027
45	POLY INST OF NY	F L PITTS	LARC	M L SHOOMAN	NAG 1-1272	6047
45	RENSSELAER POLY INST	G SOFFEN	GSFC	H STEPHANON	NGT 00-070-272	6091
45	ST U NY-BINGHAMTON	R C CULL	LERC	D C HOPKINS	NAG 3-1464	6130
45	ST U OF NY-BUFFALO	I MYERS	LERC	J R LAGHARI	NAG 3-1019	6141
45	ST U OF NY-BUFFALO	S DOMITZ	LERC	J R LAGHARI	NAG 3-1345	6142
45	UNIV ROCHESTER	M D BICAY	HQ	M J WENGLER	NAGW 2514	6216
45	UNIV ROCHESTER	P GOORJIAN	ARC	G AGRAWL	NCA 2-827	6218
45	UNIV ROCHESTER	E PRIOR	LARC	G W WICKS	NGT 00-051-109	6222
45	NO CAROLINA A&T ST U	I WEINBERG	LERC	W COLLY	NAG 3-976	6261
45	NC ST U.-RALEIGH	C P HEARN	LARC	R J TREW	NAG 1-943	6277
45	NC ST U.-RALEIGH	R T NEECE	LARC	S H ARDALAN	NAG 1-1219	6284
45	CASE WESTERN RES U	A J RATAJCZAK	LERC	S OSTRACH	NAG 3-886	6372
45	CASE WESTERN RES U	J L DOLCE	LERC	Y PAO	NAG 3-922	6373
45	CASE WESTERN RES U	D J BRINKER	LERC	R W HOFFMAN	NAG 3-1283	6388
45	CASE WESTERN RES U	P S GREENBERG	LERC	R V EDWARDS	NAG 3-1320	6390
45	CASE WESTERN RES U	G BEHEIM	LERC	M TABIB-AZAR	NAG 3-1473	6396
45	CASE WESTERN RES U	K B BHASIN	LERC	P C CLASPY	NCC 3-99	6416
45	CASE WESTERN RES U	K B BHASIN	LERC	M TABIB-AZAR	NCC 3-243	6436
45	CASE WESTERN RES U	L G MATUS	LERC	M MEHREGANY	NCC 3-253	6439
45	CASE WESTERN RES U	G BEHEIM	LERC	M J AZAR	NCC 3-259	6442
45	CASE WESTERN RES U	P G NEUDECK	LERC	M TABIB-AZAR	NCC 3-294	6452
45	CASE WESTERN RES U	D K RUSSELL	HQ	S PHILLIPS	NGT 00-070-351	6473
45	CLEVELAND ST U	I WEINBERG	LERC	C GORADIA	NAG 3-658	6478
45	CLEVELAND ST U	H KIM	LERC	P CHU	NAG 3-1379	6489
45	CLEVELAND ST U	L G MATUS	LERC	M G GORADIA	NCC 3-121	6503
45	CLEVELAND ST U	J A KOBAK	LERC	G L KRAMERICH	NCC 3-163	6510
45	CLEVELAND ST U	M J CONROY	LERC	D ZEGHLACHE	NCC 3-201	6513
45	CLEVELAND ST U	J H MOHAMED	LERC	F XIONG	NCC 3-232	6517
45	CLEVELAND ST U	J C DELAAT	LERC	F E VILLASECA	NCC 3-257	6519
45	CUYAHOGA COMMUNITY C	C W SLAUTER	LERC	R TALERICO	NCA 3-12	6537
45	JOHN CARROLL UNIV	G BEHEIM	LERC	K FRITSCH	NAG 3-571	6542
45	OHIO ST U	G C BARBER	LARC	E H NEWMAN	NAG 1-1058	6557
45	OHIO ST U	A C WOO	ARC	R LEE	NAG 2-870	6561
45	OHIO ST U	R J SHAW	LERC	L PETERS	NAG 3-913	6566
45	OHIO ST U	M ANDRO	LERC	S B BIBYK	NAG 3-1082	6570
45	OHIO ST U	E A BOBINSKY	LERC	S C AHALT	NAG 3-1164	6572
45	OHIO ST U	E RHO	LERC	P H PATHAK	NAG 3-1359	6575
45	OHIO ST U	I WEINBERG	LERC	S A RINGEL	NAG 3-1461	6581
45	OHIO ST U	E RHO	LERC	W D BURNSIDE	NAG 3-1496	6583
45	OHIO ST U	E RHO	LERC	W D BURNSIDE	NAG 3-1497	6584
45	OHIO ST U	R R KUNATH	LERC	W D BURNSIDE	NAS 3-26305	6616
45	OHIO ST U	K B BHASIN	LERC	G V VALCO	NCC 3-197	6621
45	OHIO ST U	F C OWENS	HQ	G J VALCO	NGT 00-050-378	6625
45	OHIO ST U	M C GILREATH	LARC	W D BURNSIDE	NSG-1498	6630
45	OHIO ST U	M C GILREATH	LARC	W D BURNSIDE	NSG-1613	6631
45	OHIO UNIV	F R MORRELL	LARC	R H MCFARLAND	NGR36-9017	6642
45	UNIV AKRON	L M BURROWS	LERC	D S ZINGER	NAG 3-1236	6663
45	UNIV AKRON	G ADAUIOVSKY	LERC	S I HARIHARAN	NCC 3-283	6688
45	UNIV AKRON	F MONTEGANI	LERC	M ELBULUK	NGT 00-051-182	6690
45	UNIV CINCINNATI	R R KUNATH	LERC	K P ROENKER	NCC 3-252	6718
45	UNIV CINCINNATI	F C OWENS	HQ	V J KAPOOR	NGT 00-050-492	6722
45	UNIV CINCINNATI	F C OWENS	HQ	S G RUBIN	NGT 00-070-151	6725
45	UNIV CINCINNATI	F C OWENS	HQ	S G RUBIN	NGT 00-070-168	6726
45	UNIV TOLEDO	J M BUDINGER	LERC	S C KWATRA	NAG 3-799	6737
45	UNIV TOLEDO	R P GRUBER	LERC	T A STUART	NAG 3-1102	6740
45	UNIV TOLEDO	S A ALTEROVITZ	LERC	E D SMITH	NAG 3-1226	6744
45	UNIV TOLEDO	W A WHYTE	LERC	E SALARI	NAG 3-1323	6750
45	UNIV TOLEDO	R O LEE	LERC	K F LEE	NCC 3-126	6766

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45	UNIV TOLEDO	R A MENU	LERC	K J DE WITT	NCC 3-260	6774
45	CARNEGIE-MELLON UNIV	V C OWENS	HQ	T KANADE	NGT 00-050-559	6891
45	CARNEGIE-MELLON UNIV	F C OWENS	HQ	D CASASANT	NGT 00-050-577	6892
45	CARNEGIE-MELLON UNIV	E J PRIOR	LARC	P KHOSLA	NGT 00-050-990	6895
45	CARNEGIE-MELLON UNIV	C HIX	JPL	R SIMMONS	NGT 00-051-039	6898
45	CARNEGIE-MELLON UNIV	F SIX	MSFC	E KROTKOV	NGT 00-051-045	6899
45	DREXEL UNIV	F L PITTS	LARC	L A TRACHTENBERG	NAG 1-1124	6903
45	DREXEL UNIV	D I SOLOWAY	LARC	S GRAY	NCC 1-171	6915
45	DREXEL UNIV	R R KUNATH	LERC	A S DARYOUSH	NCC 3-149	6916
45	PA ST U.-UNIV. PARK	F B BECK	LARC	R J LUEBBERS	NAG 1-1332	6943
45	PA ST U.-UNIV. PARK	F B BECK	LARC	R J LUEBBERS	NAG 1-1350	6944
45	PA ST U.-UNIV. PARK	F B BECK	LARC	R J LUEBBERS	NAG 1-1504	6954
45	PA ST U.-UNIV. PARK	A C WOO	ARC	R J LUEBBERS	NAG 2-867	6961
45	UNIV PITTSBURGH	G E SCHWARZE	LERC	W R WIESERMAN	NAG 3-945	7103
45	BROWN UNIV	G SOFFEN	GSFC	N M LAWANDY	NGT 00-050-755	7179
45	CLEMSON UNIV-CLEMSON	A I MACKENZIE	LARC	E G BAXA	NAG 1-928	7212
45	CLEMSON UNIV-CLEMSON	C T DOMINY	GSFC	A S COLLINS	NAS 5-31256	7231
45	CLEMSON UNIV-CLEMSON	T BENNETT	GSFC	A S COLLINS	NAS 5-32462	7233
45	CLEMSON UNIV-CLEMSON	E PRIOR	LARC	E G BAXA	NGT 00-050-975	7241
45	VANDERBILT UNIV	K B HERNANDEZ	MSFC	G E COOK	NAG 8-116	7336
45	VANDERBILT UNIV	G I JOHNSTON	HQ	A M STRAUSS	NAGW 2030	7347
45	LAMAR UNIV	S FISHER	JSC	W E SIMON	NAG 9-561	7373
45	LAMAR UNIV	S FISHER	JSC	W E SIMON	NAG 9-626	7378
45	PRAIRIE VIEW A&M U	G D ARNDT	JSC	C L TOLLIVER	NAG 9-318	7390
45	RICE UNIV	F C OWENS	HQ	R DE FIGUEIREDO	NGT 00-050-379	7435
45	RICE UNIV	F C OWENS	HQ	D H JOHNSON	NGT 00-050-447	7436
45	TEXAS A&I UNIV	C C OWENS	HQ	J S LINDER	NGT 00-070-183	7461
45	TEXAS A&M UNIV	J M BUDINGER	LERC	C N GEORGHIADES	NAG 3-1353	7479
45	TEXAS A&M UNIV	J M BOZEK	LERC	F LITTLE	NAG 3-1368	7480
45	TEXAS A&M UNIV	J D BURKE	JSC	M EHSANI	NAG 9-431	7500
45	TEXAS A&M UNIV	D L BELANGER	JSC	A J APPLEBY	NAG 9-598	7512
45	TEXAS A&M UNIV	F C OWENS	HQ	J H PAINTER	NGT 00-050-401	7541
45	TEXAS A&M UNIV	F C OWENS	HQ	F BEST	NGT 00-050-595	7542
45	TEXAS A&M UNIV	D K RUSSELL	HQ	K CHANG	NGT 00-070-304	7551
45	TEXAS TECH UNIV	F L PITTS	LARC	T F TROST	NAG 1-1510	7579
45	TEXAS TECH UNIV	J A VILLARREAL	JSC	S MITRA	NAG 9-673	7582
45	UNIV HOUSTON	J W SUNKEL	JSC	L S SHIEH	NAG 9-380	7590
45	UNIV HOUSTON	P NGO	JSC	J C WOLFE	NAG 9-441	7594
45	UNIV HOUSTON	N PHONG	JSC	J T WILLIAMS	NAG 9-508	7595
45	UNIV HOUSTON	G D ARNDT	JSC	D WILTON	NAG 9-542	7598
45	UNIV HOUSTON	J H SUDDATH	JSC	P KTONAS	NAG 9-543	7599
45	UNIV HOUSTON	H NGUYEN	JSC	H A OGMEN	NAG 9-578	7606
45	UNIV HOUSTON	P NGO	JSC	J T WILLIAMS	NAG 9-593	7610
45	U TX-ARLINGTON	K BAKER	JSC	V DEVARAJAN	NAG 9-587	7679
45	U TX-ARLINGTON	F C OWENS	HQ	A K FUNG	NGT 00-050-585	7683
45	U TX-ARLINGTON	F C OWENS	HQ	A K FUNG	NGT 00-050-844	7684
45	U TX-AUSTIN	K BAKER	JSC	A C BOVIK	NAG 9-666	7730
45	U TX-AUSTIN	A J ZAMAN	LERC	H LING	NCC 3-273	7774
45	U TX-AUSTIN	D K RUSSELL	HQ	J CAMBELL	NGT 00-070-338	7806
45	CHRISTOPHER NWPORT C	S G JURCZYK	LARC	R F HODSON	NAG 1-1439	7917
45	CHRISTOPHER NWPORT C	R S ROGOWSKI	LARC	A M BUONCRISTIANI	NAG 1-1443	7918
45	OLD DOMINION UNIV	D L GRAY	LARC	J W STOUGHTON	NCC 1-120	8032
45	OLD DOMINION UNIV	P J HAYES	LARC	W STOUGHTON	NCC 1-136	8033
45	OLD DOMINION UNIV	D L GRAY	LARC	D L LIVINGSTON	NCC 1-164	8035
45	OLD DOMINION UNIV	J T LYNCH	HQ	A DHARAMSI	NGT 00-051-103	8044
45	OLD DOMINION UNIV	L EVANS	LARC	K H SCHOENBACH	NGT 00-051-188	8047
45	OLD DOMINION UNIV	E J PRIOR	LARC	S ALBIN	NGT 00-070-231	8050
45	OLD DOMINION UNIV	E PRIOR	LARC	J W STAUGHTON	NGT 00-070-296	8053
45	OLD DOMINION UNIV	J T LYNCH	HQ	S ALBIN	NGT 00-070-307	8055
45	OLD DOMINION UNIV	D K RUSSELL	HQ	S ALBIN	NGT 00-070-308	8056



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45	UNIV VIRGINIA	P I CARRAWAY	LARC	E D TOWE	NAG 1-1434	8074
45	UNIV VIRGINIA	J LARIMER	ARC	M SHUR	NAG 2-872	8079
45	UNIV VIRGINIA	F C OWENS	HQ	B W JOHNSON	NGT 00-050-578	8127
45	UNIV VIRGINIA	F C OWENS	HQ	S H JONES	NGT 00-050-647	8128
45	UNIV VIRGINIA	F C OWENS	HQ	T W CROWE	NGT 00-050-725	8132
45	UNIV VIRGINIA	F C OWENS	HQ	A W LICHTENBERGER	NGT 00-050-820	8136
45	UNIV VIRGINIA	F C OWENS	HQ	T F GALLAGHER	NGT 00-050-834	8138
45	UNIV VIRGINIA	J T LYNCH	HQ	N NANDHAKUMAR	NGT 00-051-055	8145
45	UNIV VIRGINIA	G LASANE	HQ	E TOWE	NGT 00-051-068	8147
45	UNIV VIRGINIA	F C OWENS	HQ	R J MATTAUCH	NGT 00-070-166	8155
45	UNIV VIRGINIA	J ALEXANDER	HQ	B W JOHNSON	NGT 00-070-198	8158
45	UNIV VIRGINIA	D K RUSSELL	HQ	E TOWE	NGT 00-070-336	8163
45	VA PLOY INST & ST U	M C BAILEY	LARC	W L STUTZMAN	NAG 1-859	8176
45	VA PLOY INST & ST U	K K TEDJOJUWONO	LARC	R G MAY	NAG 1-1275	8191
45	VA PLOY INST & ST U	R S ROGOWSKI	LARC	R O CLAUS	NAG 1-1348	8198
45	VA PLOY INST & ST U	R S ROGOWSKI	LARC	R O CLAUS	NAG 1-1508	8212
45	VA PLOY INST & ST U	G KOPASAKIS	LERC	F C LEE	NAG 3-1349	8219
45	VA PLOY INST & ST U	C L PARSONS	GSFC	G S BROWN	NAG 5-659	8222
45	VA PLOY INST & ST U	J M JAGIELSKI	GSFC	F C LEE	NAS 5-31442	8229
45	VA PLOY INST & ST U	F C OWENS	HQ	W STUTZMAN	NGT 00-050-413	8236
45	VA PLOY INST & ST U	F C OWENS	HQ	D LINDNER	NGT 00-050-552	8239
45	VA PLOY INST & ST U	F C OWENS	HQ	T PRATT	NGT 00-050-754	8242
45	VA PLOY INST & ST U	E PRIOR	LARC	W L STUTZMAN	NGT 00-070-295	8250
45	VA PLOY INST & ST U	D K RUSSELL	HQ	T POON	NGT 00-070-318	8252
45	UNIV WASHINGTON	F C OWENS	HQ	A K SOMANI	NGT 00-050-801	8419
45	UNIV WASHINGTON	J K ALEXANDER	HQ	R WEST	NGT 00-050-812	8420
45	WEST VIRGINIA UNIV	J M VRANISH	GSFC	R L MCCONNELL	NAG 5-1488	8454
45	WEST VIRGINIA UNIV	F C OWENS	HQ	S N DWIVEDI	NGT 00-050-671	8461
45	UNIV WISC-MADISON	L M BURROWS	LERC	T A LIPO	NAG 3-1299	8500
45	UNIV WISC-MADISON	J A HAMLEY	LERC	D M DWAN	NAG 3-1331	8501
45	UNIV WISC-MADISON	L M TAYLOR	LERC	T A LIPO	NAG 3-1447	8503
45	UNIV WISC-MADISON	J O LARIMER	ARC	B E SALEH	NCC 2-780	8605
45	UNIV WISC-MADISON	E D BAUMANN	LERC	D M DIVAN	NCC 3-261	8606
45	U PUERTO RICO-MAYAGZ	D K RUSSELL	HQ	R E VASQUEZ	NGT 00-070-208	8655
45	U PUERTO RICO-MAYAGZ	A JOYCH	SSC	R VASQUEZ	NGT 00-070-267	8659
45	U PUERTO RICO-MAYAGZ	D K RUSSELL	HQ	R VASQUEZ	NGT 00-070-362	8665
45	TEL-AVIV UNIV	D J FLOOD	LERC	J APPELBAUM	NAGW 2022	8683
46	ALA A&M UNIV	J L RANDALL	MSFC	G J HURFORD	NAG 8-23	1002
46	AUBURN UNIV	B G PENN	MSFC	D W MACKOWSKI	NAG 8-977	1034
46	AUBURN UNIV	F C OWENS	HQ	M J CROCKER	NGT 00-050-402	1042
46	AUBURN UNIV	F C OWENS	HQ	J C SINHA	NGT 00-050-567	1046
46	AUBURN UNIV	F C OWENS	HQ	P K RAJU	NGT 00-050-597	1047
46	AUBURN UNIV	F C OWENS	HQ	G J WEENS	NGT 00-050-730	1049
46	AUBURN UNIV	D K RUSSEL	HQ	G T FLOWERS	NGT 00-070-312	1055
46	UNIV ALA-HUNTSVILLE	F C OWENS	HQ	W P SCHONBERG	NGT 00-050-643	1166
46	UNIV ALA-HUNTSVILLE	F C OWENS	HQ	Z MUSIELAK	NGT 00-050-701	1168
46	UNIV ALA-HUNTSVILLE	F SIX	MSFC	J A GILBERT	NGT 00-050-881	1171
46	UNIV ALA-HUNTSVILLE	F C OWENS	HQ	G R KARR	NGT 00-070-159	1174
46	UNIV ALA-HUNTSVILLE	F S SIX	MSFC	G KARR	NGT 00-070-240	1175
46	UNIV ALA-UNIV	K S TYGIELSKI	MSFC	C B EVCES	NAG 8-154	1187
46	UNIV ALA-UNIV	J E WILLIAMSON	MSFC	C R EVCES	NAG 8-162	1188
46	UNIV ALA-UNIV	C COLLEY	MSFC	C R EVCES	NAG 8-813	1192
46	UNIV ALA-UNIV	F SIX	HQ	L T WORTZ	NGT 00-070-302	1198
46	UNIV OF ARIZONA	R SKARDA	LERC	K RAMOHALLI	NAG 3-1260	1339
46	CALIF INST OF TECH	H P STINSON	MSFC	C E BRENNEN	NAG 8-937	1604
46	CALIF INST OF TECH	F C OWENS	HQ	T K GAUGHEY	NGT 00-050-528	1682
46	CALIF INST OF TECH	F C OWENS	HQ	J W BURDICK	NGT 00-050-574	1683
46	CALIF INST OF TECH	F C OWENS	HQ	A INGERSOLL	NGT 00-050-576	1684
46	CAL ST U-LOS ANGELES	R L YANG	LARC	D ROBERTO	NAG 1-1455	1742
46	HARVEY MUDD COLLEGE	M L HINES	ARC	H WILLIAMS	NCA 2-758	1765

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46	SAN FRANCISCO ST U	H NELSON	ARC	M M ABO-ELL-ATA	NCA 2-639	1787
46	SAN FRANCISCO ST U	G M MULENBURG	ARC	P PFAELZER	NCA 2-835	1792
46	SANTA CLARA UNIV	A W STRAWA	ARC	T G YIP	NCA 2-401	1852
46	SANTA CLARA UNIV	J V BOWLES	ARC	G T YIP	NCA 2-643	1854
46	SANTA CLARA UNIV	R G SYNNESTVEDT	ARC	S D HADDAD	NCA 2-674	1855
46	SANTA CLARA UNIV	R D MACELROY	ARC	M A SAAD	NCA 2-696	1856
46	SANTA CLARA UNIV	R D MACELROY	ARC	D D SILJAK	NCA 2-697	1857
46	STANFORD UNIV	L M CARNEY	LERC	M A CAPPELLI	NAG 3-1040	1877
46	STANFORD UNIV	K S CHUN	LERC	R K HANSON	NAG 3-1185	1879
46	STANFORD UNIV	T L PANONTIN	ARC	S SHEPPARD	NCA 2-493	1932
46	STANFORD UNIV	B WEBBON	ARC	B B LUSIGNAN	NCA 2-503	1935
46	STANFORD UNIV	J B POLLACK	ARC	J H FERZIGER	NCA 2-530	1936
46	STANFORD UNIV	D A JOHNSON	ARC	J K EATON	NCA 2-535	1937
46	STANFORD UNIV	T BUCKLEY	ARC	B ROTH	NCA 2-685	1952
46	STANFORD UNIV	B WEBBON	ARC	B LUSIGNAN	NCA 2-704	1956
46	STANFORD UNIV	J A CAVOLOWSKY	ARC	R K HANSON	NCA 2-706	1957
46	STANFORD UNIV	R T WHALEN	ARC	D CARTER	NCA 2-748	1959
46	STANFORD UNIV	D A JOHNSON	ARC	J K EATON	NCA 2-754	1961
46	STANFORD UNIV	H NELSON	ARC	D NELSON	NCA 2-767	1963
46	STANFORD UNIV	M INOUE	ARC	P MOIN	NCC 2-460	1977
46	STANFORD UNIV	F C OWENS	HQ	P BRADSHAW	NGT 00-050-445	1998
46	STANFORD UNIV	F C OWENS	HQ	G F FRANKLIN	NGT 00-050-511	1999
46	STANFORD UNIV	F C OWENS	HQ	D R CARTER	NGT 00-050-564	2000
46	STANFORD UNIV	M MOORE	ARC	R J MOFFAT	NGT 00-051-028	2010
46	STANFORD UNIV	M MOORE	ARC	L LEIFER	NGT 00-070-275	2021
46	STANFORD UNIV	S M MOORE	ARC	R K HANSON	NGT 00-070-276	2022
46	STANFORD UNIV	D K RUSSELL	HQ	J POWELL	NGT 00-070-361	2030
46	UNIV CALIF-BERKELEY	A STRAWA	ARC	M HOLT	NCA 2-529	2162
46	UNIV CALIF-BERKELEY	H D ROSS	LERC	A C FERNANDEZ-PELLO	NCC 3-239	2179
46	UNIV CALIF-BERKELEY	P HUNTER	HQ	M HOLT	NGT 00-051-030	2208
46	UNIV CALIF-BERKELEY	D K RUSSELL	HQ	M HOLT	NGT 00-070-309	2212
46	UNIV CALIF-BERKELEY	D K RUSSELL	HQ	F HURLEUT	NGT 00-070-310	2213
46	UNIV CALIF-DAVIS	R STRAWN	ARC	M HAFEZ	NCA 2-663	2252
46	UNIV CALIF-DAVIS	F CARADONNA	ARC	M M HAFEZ	NCA 2-737	2258
46	UNIV CALIF-DAVIS	J B HAGGARD	LERC	B D SHAW	NCC 3-245	2271
46	UNIV CALIF-DAVIS	J T LYNCH	HQ	A MCKILLOP	NGT 00-070-207	2276
46	UNIV CALIF-IRVINE	F C OWENS	HQ	W E SCHMITENDORT	NGT 00-050-551	2311
46	UNIV CAL-LOS ANGELES	R L THOMPSON	LERC	R E KELLY	NAG 3-1456	2336
46	UNIV CAL-LOS ANGELES	R FRIEDMAN	LERC	G E APOSTOLAKIS	NAS 3-25975	2434
46	UNIV CAL-SAN DIEGO	H D ROSS	LERC	A L BERLAD	NAG 3-925	2483
46	UNIV CAL-SAN DIEGO	K W BAKER	LERC	K O LUND	NAG 3-1243	2485
46	UNIV CAL-SAN DIEGO	H D ROSS	LERC	F A WILLIAMS	NAG 3-1248	2486
46	UNIV CAL-SAN DIEGO	O MEHMED	LERC	J B KOSMATKA	NCC 3-173	2585
46	UNIV CAL-SAN DIEGO	O MEHMER	LERC	J B KOSMATKA	NCC 3-309	2586
46	UNIV CAL-SAN DIEGO	F C OWENS	HQ	J B KOSMATKA	NGT 00-070-191	2597
46	UNIV CAL-SAN DIEGO	F C OWENS	HQ	J B KOSMATKA	NGT 00-070-199	2598
46	UNIV CAL-SAN DIEGO	F C OWENS	HQ	G RICLES	NGT 00-070-224	2600
46	U CAL-SANTA BARBARA	S M ARNOLD	LERC	F A LECKIE	NAG 3-894	2620
46	UNIV SOUTHERN CALIF	K J WEILAND	LERC	P D RONNEY	NAG 3-1523	2708
46	UNIV SOUTHERN CALIF	B C CARPENTER	HQ	S S SADHAL	NAGW 3378	2728
46	COLORADO ST U	D A HOPKINS	LERC	P R HEYLIGER	NAG 3-1520	2756
46	COLORADO ST U	G I JOHNSTON	HQ	M E CRISWELL	NAGW 2069	2769
46	UNIV COL-BOULDER	G L GILES	LARC	K C PARK	NAG 1-756	2790
46	UNIV COL-BOULDER	W H PROSSER	LARC	W P RODGERS	NAG 1-1390	2797
46	UNIV COL-BOULDER	R E GILLIAN	LARC	C FARHAT	NAG 1-1391	2798
46	UNIV COL-BOULDER	H G BUSH	LARC	M M MIKULAS	NAG 1-1483	2801
46	UNIV COL-BOULDER	H G BUSH	LARC	L D PETERSON	NAG 1-1490	2802
46	UNIV COL-BOULDER	R FRIEDMAN	LERC	M C BRANCH	NAG 3-1257	2816
46	UNIV CONNECTICUT	G C FRALICK	LERC	E H JORDAN	NAG 3-1004	3101
46	UNIV CONNECTICUT	A D FREED	LERC	E H JORDAN	NAG 3-1258	3102

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46	YALE UNIV	H D ROSS	LERC	A GOMEZ	NAG 3-1259	3116
46	GEORGE WASHINGTON U	R G KVATERNIK	LARC	R H TOLSON	NAG 1-1416	3174
46	HOWARD UNIV	D F NOGA	LERC	R REISS	NAG 3-1445	3201
46	FLORIDA ATLANTIC U	W C MARRILL	LERC	A DUJAR	NAG 3-1006	3267
46	FLORIDA ATLANTIC U	M LITTLEFIELD	KSC	W L CHOW	NAG10-83	3275
46	FLORIDA ST U	Y C CHO	ARC	L LOURENCO	NAG 2-809	3296
46	FLORIDA ST U	F SIX	MSFC	T N KRISHNAMURTI	NGT 00-070-258	3337
46	UNIV OF CENTRAL FLA	J ALIBERTI	KSC	A T RAISSI	NAG10-82	3345
46	UNIV OF CENTRAL FLA	R M DAVIS	KSC	E A MOSLEKY	NAG10-117	3352
46	UNIV FLORIDA	S E WOODARD	LARC	D C ZIMMERMAN	NAG 1-1017	3369
46	UNIV FLORIDA	K P KUNDU	LERC	N S WINOWICH	NAG 3-1340	3381
46	UNIV SOUTH FLORIDA	M O DUSTIN	LERC	R A CRANE	NAG 3-851	3448
46	GEORGIA INST OF TECH	D SOLOWAY	LARC	W J BOOK	NAG 1-623	3477
46	GEORGIA INST OF TECH	J T WANG	LARC	S N ATLURI	NAG 1-1319	3489
46	GEORGIA INST OF TECH	R W VERNON	LERC	G P NEITZEL	NAG 3-1221	3506
46	GEORGIA INST OF TECH	R L THOMPSON	LERC	G P NEITZEL	NAG 3-1454	3508
46	GEORGIA INST OF TECH	T GALLOWAY	ARC	D P SCHRAGE	NCA 2-652	3534
46	GEORGIA INST OF TECH	G C FRALICK	ARC	L J FORNEY	NCC 3-135	3544
46	GEORGIA INST OF TECH	G C FRALICK	LERC	L J FORNEY	NCC 3-302	3545
46	GEORGIA INST OF TECH	F C OWENS	HQ	H A EMST	NGT 00-050-641	3551
46	GEORGIA INST OF TECH	J T LYNCH	HQ	KEMPER	NGT 00-051-102	3559
46	GEORGIA INST OF TECH	F T LYNCH	HQ	K A CUNEFARE	NGT 00-051-115	3561
46	GEORGIA INST OF TECH	F MONTEGANI	LERC	D L MCDOWELL	NGT 00-051-178	3563
46	GEORGIA INST OF TECH	D K RUSSELL	HQ	W J WEPFER	NGT 00-070-254	3564
46	GEORGIA SOUTHERN COL	R L THOMPSON	LERC	M K SMITH	NAG 3-1455	3576
46	UNIV HAWAII-MANOA	A TESSLER	LARC	H R RIGGS	NAG 1-1487	3613
46	UNIV CHICAGO	R F HANDSCHUH	LERC	F L LITVIN	NAG 3-1263	3784
46	UNIV ILLINOIS-CHICGO	D L BULZAN	LERC	S K AGGARWAL	NAG 3-796	3874
46	UNIV ILLINOIS-CHICGO	M J VALCO	LERC	F M AMIROUCHE	NAG 3-1092	3876
46	UNIV ILLINOIS-CHICGO	D L BULZAN	LERC	S K AGGARWAL	NAG 3-1135	3877
46	UNIV ILLINOIS-CHICGO	R F HANDSCHUH	LERC	F L LITVIN	NAG 3-1469	3878
46	UNIV ILLINOIS URBANA	K O ZAMAN	LERC	M B BRAGG	NAG 3-1374	3904
46	UNIV ILLINOIS URBANA	P HUNTER	HQ	S P VANKA	NGT 00-070-292	3960
46	INDIANA U-BLOOMINGTN	M O DUSTIN	LERC	E J BAIR	NAG 3-1014	3973
46	PURDUE UNIV	J P WEIDNER	LARC	H D THOMPSON	NAG 1-854	3992
46	PURDUE UNIV	W S JOHNSON	LARC	B M HILLBERRY	NAG 1-1316	3998
46	PURDUE UNIV	J T WANG	LARC	C T SUN	NAG 1-1323	3999
46	PURDUE UNIV	R J ROLLBUHLER	LERC	A F LEFEBVRE	NAG 3-552	4007
46	PURDUE UNIV	M M BRIGHT	LERC	R SHOURESHI	NAG 3-1272	4014
46	PURDUE UNIV	D E LACY	LERC	M W BLALOCK	NAG 3-1295	4016
46	PURDUE UNIV	F C OWENS	HQ	J S BOLTON	NGT 00-050-711	4053
46	PURDUE UNIV	F C OWENS	HQ	B HILLBERRY	NGT 00-050-717	4054
46	PURDUE UNIV	F MONTEGANI	LERC	S FLEETER	NGT 00-070-279	4064
46	UNIV NOTRE DAME	M W KEHOE	ARC	S M BATILL	NCA 2-548	4079
46	IOWA ST U	D P MILLER	LERC	J H OLIVER	NAG 3-1318	4102
46	IOWA ST U	S A THORP	LERC	J H OLIVER	NAG 3-1481	4105
46	IOWA ST U	W R VAN DALSEM	ARC	R H PLETCHER	NCA 2-526	4122
46	IOWA ST U	F C OWENS	HQ	R H PLETCHER	NGT 00-050-633	4128
46	IOWA ST U	F SIX	MSFC	A FLATAU	NGT 00-050-882	4131
46	IOWA ST U	F MONTEGANI	LERC	R H PLETCHER	NGT 00-050-949	4132
46	UNIV IOWA	E PRIOR	LARC	J S ARORA	NGT 00-050-976	4185
46	KANSAS ST U	J C NEWMAN	LARC	D V SWENSON	NAG 1-1503	4188
46	UNIV KANSAS	R W MIXON	LARC	B G BARR	NAG 1-912	4194
46	UNIV KANSAS	R E GAUGLER	LERC	S FAROKHI	NAG 3-1194	4197
46	UNIV KENTUCKY	K W BAKES	LERC	L L CHOW	NAG 3-1251	4244
46	TULANE UNIV	F C OWENS	HQ	E E MICHAELIDES	NGT 00-050-695	4301
46	UNIV NEW ORLEANS	A JOYCE	SSC	E P RUSSO	NGT 00-051-014	4306
46	JOHNS HOPKINS UNIV	F C OWENS	HQ	A PROSPERETTI	NGT 00-050-486	4421
46	UNIV MD-COLLEGE PARK	J M VRANISH	GSFC	L W TSAI	NAG 5-2004	4508
46	UNIV MD-COLLEGE PARK	G SOFFEN	GSFC	K E HEROLD	NGT 00-050-926	4621

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46	BOSTON UNIV	F SIX	MSFC	T G BIFANO	NGT 00-050-878	4666
46	HARVARD UNIV	F CHIARAMONTE	LERC	G MCKINLEY	NAG 3-1385	4681
46	MASS INST OF TECH	R C TEW	LERC	J L SMITH	NAG 3-1076	4788
46	MASS INST OF TECH	P T KERWIN	LERC	D G WILSON	NAG 3-1407	4795
46	MASS INST OF TECH	M M BRIGHT	LERC	J D PADUANO	NAG 3-1457	4798
46	MASS INST OF TECH	L LI	JSC	J K SALISBURY	NAG 9-678	4861
46	MASS INST OF TECH	G WILMER	MSFC	M M SANCHEZ	NAS 8-35018	4935
46	MASS INST OF TECH	F C OWENS	HQ	S DUBOWSKY	NGT 00-050-364	4962
46	TUFTS UNIV	F MONTEGANI	LERC	A SAIGAL	NGT 00-050-943	4994
46	UNIV MASS-AMHERST	D G LEWICKI	LERC	K DANAI	NAG 3-1458	5002
46	UNIV MASS-AMHERST	D LEVINE	GSFC	C SWIFT	NAS 5-31757	5025
46	WORCESTER POLY INST	D M STOAKLEY	LARC	C A BROWN	NAG 1-1476	5055
46	WORCESTER POLY INST	H D ROSS	LERC	V MOTEVALLI	NCC 3-312	5058
46	WORCESTER POLY INST	F C OWENS	HQ	A ALEXANDROU	NGT 00-050-773	5059
46	WORCESTER POLY INST	E PRIOR	LARC	C A BROWN	NGT 00-051-107	5061
46	MICHIGAN ST U	E A WILLIS	LERC	H J SHOCK	NAG 3-853	5070
46	MICHIGAN ST U	K Q ZAMAN	LERC	J F FOSS	NAG 3-1459	5073
46	MICHIGAN TECH U	F C OWENS	HQ	I MISKIOGLU	NGT 00-050-650	5098
46	U MICHIGAN-ANN ARBOR	W E HOWELL	LARC	R D ERVIN	NAG 1-1410	5110
46	U MICHIGAN-ANN ARBOR	G L STEFKO	LERC	C PIERRE	NAG 3-1163	5127
46	U MICHIGAN-ANN ARBOR	J A PLATT	LERC	H MERTE	NAG 3-1310	5129
46	U MICHIGAN-ANN ARBOR	D A JACQMIN	LERC	G TRYGGVASON	NAG 3-1317	5130
46	U MICHIGAN-ANN ARBOR	F P CHIARAMONTE	LERC	H MERTE	NAS 3-25812	5202
46	U MICHIGAN-ANN ARBOR	F C OWENS	HQ	T KAMMASH	NGT 00-050-645	5235
46	U MICHIGAN-ANN ARBOR	J K ALEXANDER	HQ	H MERTE	NGT 00-050-928	5238
46	U MICHIGAN-ANN ARBOR	D A HOLLAND	HQ	G TRYGGVASON	NGT 00-051-070	5242
46	WAYNE ST U	P S GREENBERG	LERC	J C KU	NAG 3-1265	5254
46	WESTERN MICHIGAN U	R K BOGUE	ARC	A W HOADLEY	NCC 2-493	5261
46	U MINN-MNPLS-ST PAUL	F F SIMON	LERC	T W SIMON	NAG 3-1249	5277
46	U MINN-MNPLS-ST PAUL	C J SARMIENTO	LERC	J V HEBERLEIN	NAG 3-1332	5278
46	U MINN-MNPLS-ST PAUL	F C OWENS	HQ	E P FENDER	NGT 00-050-830	5327
46	JACKSON ST U	M D RHODES	LARC	W V BREWER	NAG 1-1125	5334
46	MISSISSIPPI STATE U	F MONTEGANI	LERC	R A ALTENKIRCH	NGT 00-050-950	5363
46	MONTANA ST U	D REDA	ARC	A DEMETRIADES	NCA 2-659	5463
46	DARTMOUTH COLLEGE	F C OWENS	HQ	F KENNEDY	NGT 00-050-376	5536
46	PRINCETON UNIV	D P STOCKER	LERC	C K LAW	NAG 3-1182	5636
46	PRINCETON UNIV	K J WEILAND	LERC	P D RONNEY	NAG 3-1242	5638
46	RUTGERS ST U-PISCTWY	R L THOMPSON	LERC	A ZEBIB	NAG 3-1453	5706
46	RUTGERS ST U-PISCTWY	F C OWENS	HQ	T WEI	NGT 00-050-707	5714
46	NEW MEX ST U-LAS CR	F C OWENS	HQ	R D COLBAUGH	NGT 00-070-187	5770
46	NEW MEX ST U-LAS CR	H ASKHENAS	JPL	R D COLBAUGH	NGT 00-070-288	5771
46	UNIV NEW MEX	A J JUHASZ	LERC	M ELGENK	NAG 3-941	5777
46	CLARKSON UNIV	F C OWENS	HQ	F M CARLSON	NGT 00-050-674	5833
46	CLARKSON UNIV	F C OWENS	HQ	M GLAUSER	NGT 00-050-839	5835
46	CLARKSON UNIV	B SWINFORD	MSFC	G AHMADI	NGT 00-051-130	5836
46	CLARKSON UNIV	R WHITE	HQ	S P LIN	NGT 00-051-142	5837
46	CORNELL UNIV	W T SUIT	LARC	M L PSIAKI	NAG 1-1009	5917
46	CORNELL UNIV	J C NEWMAN	LARC	A R INGRAFFEA	NAG 1-1184	5919
46	CORNELL UNIV	J C NEWMAN	LARC	A R INGRAFFEA	NAG 1-1311	5921
46	CORNELL UNIV	J B HAGGARD	LERC	C T AVEDISIAN	NAG 3-987	5938
46	CORNELL UNIV	Y FLOM	GSFC	F C MOON	NAS 5-31275	6002
46	CORNELL UNIV	J K ALEXANDER	HQ	C T AVEDISIAN	NGT 00-050-912	6022
46	RENSSELAER POLY INST	J T WANG	LERC	J FISH	NAG 1-1356	6056
46	RENSSELAER POLY INST	J A PLATT	LERC	P C WAYNER	NAG 3-1399	6065
46	RENSSELAER POLY INST	F C OWENS	HQ	L K LAUDERBAUGH	NGT 00-050-418	6083
46	ST U NY-BINGHAMTON	C A POWELL	LARC	R N MILES	NAG 1-978	6126
46	ST U NY-BINGHAMTON	D E BREWE	LERC	D C SUN	NAG 3-1316	6129
46	ST U OF NY-BUFFALO	J P DRUMMOND	LARC	P GIBI	NAG 1-1122	6136
46	ST U OF NY-BUFFALO	D K RUSSELL	HQ	D J MOOK	NGT 00-070-333	6151
46	ST U NY C-BUFFALO	F C OWENS	HQ	D J INMAN	NGT 00-050-541	6192

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46	SYRACUSE UNIV	J E O'BRIEN	LERC	J E LEGRAFF	NAG 3-621	6200
46	SYRACUSE UNIV	J TELESMA	LERC	H W LIU	NAG 3-837	6201
46	SYRACUSE UNIV	E J PRIOR	LARC	E F SPINA	NGT 00-051-171	6210
46	DUKE UNIV	K P SHEPHERD	LARC	E A DOWELL	NAG 1-709	6225
46	DUKE UNIV	J W POSEY	LARC	D B BLISS	NAG 1-1208	6226
46	DUKE UNIV	F C OWENS	HQ	F H COCKS	NGT 00-050-459	6245
46	DUKE UNIV	E PRIOR	LARC	L N VIRGIN	NGT 00-050-989	6246
46	DUKE UNIV	E PRIOR	LARC	D B BLISS	NGT 00-051-105	6247
46	NO CAROLINA A&T ST U	R D VANNUCCI	LERC	V S AVVA	NAG 3-1452	6263
46	NO CAROLINA A&T ST U	F C OWENS	HQ	D DUNN	NGT 00-050-841	6268
46	NC ST U.-RALEIGH	F C OWENS	HQ	J N PERKINS	NGT 00-070-161	6328
46	UNIV NC-CHARLOTTE	J M VRANISH	GSFC	P H DEHOFF	NAG 5-1169	6349
46	UNIV NC-CHARLOTTE	M S JASTER	GSFC	P H DEHOFF	NAG 5-2038	6351
46	UNIV NORTH DAKOTA	R F HANDSCHUH	LERC	G D BIBEL	NAG 3-1476	6358
46	CASE WESTERN RES U	C H LIEBERT	LERC	A DYBBS	NAG 3-686	6366
46	CASE WESTERN RES U	R J CAPALDI	LERC	M L ADAMS	NAG 3-980	6374
46	CASE WESTERN RES U	H D ROSS	LERC	J S TIEN	NAG 3-1212	6384
46	CASE WESTERN RES U	G C FRALICK	LERC	M TABIB-AZAR	NAG 3-1438	6395
46	CASE WESTERN RES U	S V PEPPER	LERC	J M PRAHL	NCC 3-30	6410
46	CASE WESTERN RES U	R W VERNON	LERC	Y KAMOTANI	NCC 3-140	6424
46	CASE WESTERN RES U	H D ROSS	LERC	J S T'EN	NCC 3-206	6432
46	CASE WESTERN RES U	N T VAN DRESAR	LERC	E RESHOTKO	NCC 3-220	6434
46	CASE WESTERN RES U	C LAWRENCE	LERC	W NEWMAN	NCC 3-278	6448
46	CASE WESTERN RES U	B M STEINETZ	LERC	J PRAHL	NCC 3-280	6449
46	CASE WESTERN RES U	F C OWENS	HQ	R D QUINN	NGT 00-050-588	6459
46	CASE WESTERN RES U	F C OWENS	HQ	J S T'EN	NGT 00-050-862	6463
46	CASE WESTERN RES U	F MONTEGANI	LERC	F E MCCAUGHAN	NGT 00-050-948	6465
46	CASE WESTERN RES U	D A HOLLAND	HQ	J S TIEN	NGT 00-051-087	6467
46	CASE WESTERN RES U	G LESANE	HQ	F E MCCLAUGHAN	NGT 00-051-143	6468
46	CASE WESTERN RES U	F MONTEGANI	LERC	V KAMOTANI	NGT 00-051-168	6469
46	CASE WESTERN RES U	B SWINFORD	MSFC	R D QUINN	NGT 00-051-194	6470
46	CLEVELAND ST U	J M MANDERSCHIED	LERC	A PINTZ	NAG 3-879	6480
46	CLEVELAND ST U	T L KRANTZ	LERC	M RASHIDI	NAG 3-1191	6486
46	CLEVELAND ST U	C J MAREK	LERC	B GHORASHI	NCC 3-100	6500
46	LORAIN CNTY COMTY C	T K GLASGOW	LERC	J TOMSIC	NCC 3-226	6554
46	OHIO ST U	K Q ZAMAN	LERC	M SAMIMY	NAG 3-764	6563
46	OHIO ST U	C LAWRENCE	LERC	A W LEISSA	NAG 3-880	6565
46	OHIO ST U	F MONTEGANI	LERC	M SAMIMY	NGT 00-050-945	6627
46	OHIO ST U	D K RUSSELL	HQ	S KORPELA	NGT 00-070-349	6629
46	OHIO UNIV	D M SWEC	LERC	G WOOD	NAG 3-1269	6634
46	OHIO UNIV	D P VALLELY	MSFC	J R MITCHELL	NAG 8-167	6635
46	UNIV AKRON	J J ZAKRAJSEK	LERC	F K CHOY	NAG 3-900	6652
46	UNIV AKRON	G BOBULA	LERC	M J BRAUN	NAG 3-969	6655
46	UNIV AKRON	H H COE	LERC	M SAVAGE	NAG 3-1047	6656
46	UNIV AKRON	R J CAPALDI	LERC	M J BRAUN	NAG 3-1071	6657
46	UNIV AKRON	R F HANDSCHULT	LERC	G D BIBEL	NAG 3-1190	6661
46	UNIV AKRON	A D LIANG	LERC	M J BRAUN	NAG 3-1361	6668
46	UNIV AKRON	J F WALKER	LERC	M J BRAUN	NAG 3-1366	6669
46	UNIV AKRON	J J ZAKRAJSEK	LERC	F K CHOY	NAG 3-1376	6670
46	UNIV AKRON	B B CHOI	LERC	Y J LIN	NAG 3-1444	6671
46	UNIV AKRON	B N ROSENTHAL	LERC	C BATUR	NCC 3-150	6677
46	UNIV AKRON	S A HIPPENSTEELE	LERC	M J BRAUN	NCC 3-161	6678
46	UNIV AKRON	S A HIPPENSTEELE	LERC	M J BRAUN	NCC 3-165	6680
46	UNIV CINCINNATI	K W BAKER	LERC	F M GERNER	NAG 3-1392	6703
46	UNIV CINCINNATI	L C FREUDINGER	ARC	R J ALLEMANG	NCA 2-734	6712
46	UNIV DAYTON	R G FORMAN	JSC	J P GALLAGHER	NAG 9-600	6730
46	UNIV DAYTON	D A HOLLAND	HQ	K P HALLINAN	NGT 00-051-089	6732
46	UNIV TOLEDO	K Q ZAMAN	LERC	K J DEWITT	NAG 3-1338	6751
46	UNIV TOLEDO	J F WALKER	LERC	T G KEITH	NAG 3-1370	6752
46	UNIV TOLEDO	I WEINBERG	LERC	T G KEITH	NAG 3-1466	6755

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46	UNIV TOLEDO	D L CHUBB	LERC	A A AFJEH	NCC 3-196	6769
46	UNIV TOLEDO	R L FUSARO	LERC	T G KEITH	NCC 3-279	6775
46	UNIV TOLEDO	F F SIMON	LERC	K J DEWITT	NCC 3-288	6776
46	UNIV TOLEDO	D E BREWE	LERC	T G KEITH	NCC 3-291	6777
46	UNIV TOLEDO	F MONTEGANI	LERC	K J DEWITT	NGT 00-050-944	6779
46	WRIGHT ST U	D A HOPKINS	LERC	R GRANDHI	NAG 3-1489	6783
46	UNIV OKLAHOMA-NORMAN	K R FERNANDEZ	MSFC	P S PULAT	NAG 8-137	6793
46	UNIV OKLAHOMA-NORMAN	F C OWENS	HQ	R A KLINE	NGT 00-050-412	6801
46	UNIV OKLAHOMA-NORMAN	E PRIOR	LARC	R A KLINE	NGT 00-051-110	6802
46	CARNEGIE-MELLON UNIV	H L NGUYEN	LERC	J I RAMOS	NAG 3-1009	6874
46	CARNEGIE-MELLON UNIV	L A KIEFLING	MSFC	J H GRIFFIN	NAS 8-38348	6883
46	CARNEGIE-MELLON UNIV	W J CHYU	ARC	T SHIH	NCA 2-824	6885
46	CARNEGIE-MELLON UNIV	L S MASON	LERC	W L WHITTAKER	NCC 3-297	6888
46	CARNEGIE-MELLON UNIV	F C OWENS	HQ	M K CHYU	NGT 00-050-436	6890
46	DREXEL UNIV	B M STEINETZ	LERC	F K KO	NAG 3-1059	6905
46	LEHIGH UNIV	D K RUSSELL	HQ	J RICLES	NGT 00-070-346	6928
46	PA ST U.-UNIV. PARK	S A HIPPENSTEELE	LERC	C CAMCI	NAG 3-989	6963
46	PA ST U.-UNIV. PARK	B PALASZEWSKI	LERC	S R TURNS	NAG 3-1044	6966
46	PA ST U.-UNIV. PARK	J F WALKER	LERC	M CARPINO	NAG 3-1052	6967
46	PA ST U.-UNIV. PARK	C F LOROZO	LERC	A RAY	NAG 3-1240	6971
46	PA ST U.-UNIV. PARK	K Q ZAMAN	LERC	P J MORRIS	NAG 3-1492	6977
46	PA ST U.-UNIV. PARK	F C OWENS	HQ	G S SETTLES	NGT 00-050-400	7066
46	PA ST U.-UNIV. PARK	F C OWENS	HQ	G S SETTLES	NGT 00-050-495	7067
46	PA ST U.-UNIV. PARK	F C OWENS	HQ	A RAY	NGT 00-050-706	7069
46	PA ST U.-UNIV. PARK	F SIX	MSFC	C L MERKLE	NGT 00-050-884	7071
46	PA ST U.-UNIV. PARK	M MOORE	ARC	G S SETTLES	NGT 00-050-952	7072
46	PA ST U.-UNIV. PARK	F SIX	MSFC	V YANG	NGT 00-050-953	7073
46	PA ST U.-UNIV. PARK	F SIX	MSFC	V YANG	NGT 00-051-119	7078
46	PA ST U.-UNIV. PARK	F SIX	MSFC	D A SANTAVICCA	NGT 00-051-165	7081
46	PA ST U.-UNIV. PARK	F SIX	MSFC	R J SANFORO	NGT 00-070-257	7084
46	UNIV PENNSYLVANIA	F C OWENS	HQ	H H BAU	NGT 00-050-688	7099
46	UNIV PENNSYLVANIA	F C OWENS	HQ	R P PAUL	NGT 00-050-729	7100
46	UNIV PENNSYLVANIA	D K RUSSELL	HQ	V KUMAR	NGT 00-070-359	7101
46	UNIV PITTSBURGH	D L NG	LERC	C C HWANG	NAG 3-1439	7106
46	CLEMSON UNIV-CLEMSON	A TESSLER	LARC	N F KNIGHT	NAG 1-1374	7216
46	CLEMSON UNIV-CLEMSON	L REID	LERC	C H WU	NAG 3-1072	7217
46	CLEMSON UNIV-CLEMSON	F C OWENS	HQ	J G GOREE	NGT 00-050-715	7240
46	MEMPHIS ST U	F B OSWALD	LERC	H H LIN	NAG 3-961	7278
46	MEMPHIS ST U	T L HARDY	LERC	J I HOCHSTEIN	NAG 3-1292	7279
46	MEMPHIS ST U	T L HARDY	LERC	J I HOCHSTEIN	NAG 3-1530	7280
46	TENNESSEE TECH U	F C OWENS	HQ	S HAN	NGT 00-050-731	7298
46	UNIV TENN-KNOXVILLE	W W HANKINS	LARC	R V DUBEY	NAG 1-1008	7300
46	UNIV TENN-KNOXVILLE	R H ESKRIDGE	MSFC	S M JENG	NAG 8-132	7307
46	UNIV TENN-KNOXVILLE	K E MCCOY	MSFC	M KEYHANI	NAG 8-862	7309
46	UNIV TENN-KNOXVILLE	F C OWENS	HQ	C F LO	NGT 00-050-703	7323
46	VANDERBILT UNIV	R A MILLER	LERC	T A CRUSE	NCC 3-187	7353
46	VANDERBILT UNIV	F SIX	MSFC	E GARCIA	NGT 00-050-883	7356
46	VANDERBILT UNIV	F MONTEGANI	LERC	R PITZ	NGT 00-050-946	7357
46	VANDERBILT UNIV	F SIX	MSFC	E GARCIA	NGT 00-051-044	7358
46	VANDERBILT UNIV	F MONTEGANI	LERC	T A CRUSE	NGT 00-051-053	7359
46	LAMAR UNIV	D A HAMILTON	JSC	P R CORDER	NAG 9-539	7372
46	LAMAR UNIV	C H LIN	JSC	W E SIMON	NAG 9-613	7375
46	LAMAR UNIV	M HOY	JSC	W E SIMON	NAG 9-620	7377
46	LAMAR UNIV	L MONFORD	JSC	V D NGUYEN	NAG 9-639	7379
46	LAMAR UNIV	M HOY	JSC	W E SIMON	NAG 9-640	7380
46	RICE UNIV	T CLEGHORN	JSC	J B CHEATHAM	NAG 9-443	7411
46	RICE UNIV	L QUIOCHO	JSC	D H JOHNSON	NAG 9-461	7414
46	RICE UNIV	J T CHLADEK	JSC	J B CHEATHAM	NAG 9-510	7415
46	RICE UNIV	D A HAMILTON	JSC	P D SPANOS	NAG 9-513	7416
46	RICE UNIV	C H LIN	JSC	E V BARRERA	NAG 9-628	7418

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46	RICE UNIV	S GOLSDSTEIN	JSC	B AAZHANG	NGT 00-051-050	7446
46	RICE UNIV	D K RUSSELL	HQ	A MEADE	NGT 00-070-353	7449
46	TEXAS A&M UNIV	J R REEDER	LARC	J D WHITCOMB	NAG 1-1324	7467
46	TEXAS A&M UNIV	C E HARRIS	LARC	D H ALLEN	NAG 1-1407	7469
46	TEXAS A&M UNIV	R C HENDRICKS	LERC	D W CHILDS	NAG 3-181	7471
46	TEXAS A&M UNIV	A F KASCAK	LERC	A B PALAZZOLO	NAG 3-763	7472
46	TEXAS A&M UNIV	A F KASCAK	LERC	A B PALAZZOLO	NAG 3-891	7473
46	TEXAS A&M UNIV	J F WALKER	LERC	L SAN ANDRES	NAG 3-1434	7481
46	TEXAS A&M UNIV	J K LYTIE	LERC	J A CATON	NAG 3-1512	7482
46	TEXAS A&M UNIV	A F KASCAK	LERC	A B PALAZZOLO	NAG 3-1542	7483
46	TEXAS A&M UNIV	H G GIBSON	MSFC	D CHILDS	NAG 8-294	7494
46	TEXAS A&M UNIV	L G MONFORD	JSC	L J EVERETT	NAG 9-450	7501
46	TEXAS A&M UNIV	E K UNGER	JSC	G P PETERSON	NAG 9-511	7504
46	TEXAS A&M UNIV	L G MONFORD	JSC	L J EVERETT	NAG 9-549	7509
46	TEXAS A&M UNIV	L G MUNFORD	JSC	R C REDFIELD	NAG 9-566	7510
46	TEXAS A&M UNIV	L MONFORD	JSC	L J EVERETT	NAG 9-629	7513
46	TEXAS A&M UNIV	D A HAMILTON	JSC	S MIDTURI	NAG 9-668	7515
46	TEXAS A&M UNIV	T L PANONTIN	ARC	T L ANDERSON	NCA 2-717	7535
46	TEXAS A&M UNIV-SYSTN	B L COMPOLI	LERC	T M SCHOBELIRI	NAG 3-1256	7565
46	UNIV HOUSTON	P PETETE	JSC	L C WITTE	NAG 9-532	7597
46	UNIV HOUSTON	E UNGAR	JSC	L C WITTE	NAG 9-546	7601
46	UNIV HOUSTON	L OTHON	JSC	P NANUA	NAG 9-672	7616
46	UNIV HOUSTON	F C OWENS	HQ	A POWELL	NGT 00-050-415	7626
46	UNIV HOUSTON	F C OWENS	HQ	L C WITTE	NGT 00-050-590	7627
46	UNIV HOUSTON	S GOLDSTEIN	JSC	F HUSSAIN	NGT 00-050-875	7629
46	UNIV HOUSTON	M MOORE	ARC	F HUSSAIN	NGT 00-051-022	7630
46	U TX-ARLINGTON	E L CHRISTENSEN	JSC	E P FAHRENTHOLD	NAG 9-586	7678
46	U TX-AUSTIN	J C NEWMAN JR.	LARC	M E MEAR	NAG 1-1121	7688
46	U TX-AUSTIN	R J NOWAK	LARC	D E WILSON	NAG 1-1364	7690
46	U TX-AUSTIN	F L CHRISTIANSON	JSC	E P FAHRENTHOLD	NAG 9-444	7721
46	U TX-AUSTIN	M EWERT	JSC	S P NICHOLS	NAG 9-540	7726
46	U TX-AUSTIN	J MARMOLEJO	JSC	K BALL	NAG 9-679	7734
46	U TX-AUSTIN	M MOORE	ARC	M G PANDY	NGT 00-051-025	7794
46	U TX-AUSTIN	F C OWENS	HQ	D TESAR	NGT 00-070-222	7802
46	U TX-AUSTIN	S GOLDSTEIN	JSC	R E BARR	NGT 00-070-252	7803
46	U TX-EL PASO	R A ROCHA	JSC	C M FERREGUT	NAG 9-483	7832
46	U TX-EL PASO	F C OWENS	HQ	W L CRAVER	NGT 00-070-112	7835
46	U TX-EL PASO	F C OWENS	HQ	J C MCCLURE	NGT 00-070-215	7836
46	U TX-EL PASO	D K RUSSELL	HQ	C FERREGUT	NGT 00-070-354	7842
46	UNIV UTAH	J A HINKLEY	LERC	W D BASCOM	NAS 1-18883	7877
46	UTAH ST U	M S LAKE	LARC	S L FOLKMAN	NAS 1-19418	7898
46	C-WILLIAM AND MARY	J A TANNER	LARC	C M ANDERSON	NCC 1-40	7932
46	C-WILLIAM AND MARY	E PRIOR	LARC	R ORWELL	NGT 00-051-008	7940
46	OLD DOMINION UNIV	J M HOUSNER	LARC	C MEI	NAG 1-1431	8017
46	OLD DOMINION UNIV	A TESSLER	LARC	N KNIGHT	NAG 1-1505	8020
46	OLD DOMINION UNIV	F C OWENS	HQ	G V SELBY	NGT 00-050-544	8039
46	OLD DOMINION UNIV	F C OWENS	HQ	G V SELBY	NGT 00-050-716	8040
46	OLD DOMINION UNIV	E PRIOR	LARC	A O DEMUREH	NGT 00-050-980	8041
46	OLD DOMINION UNIV	E J PRIOR	LARC	R PROBHAKARAN	NGT 00-050-987	8043
46	OLD DOMINION UNIV	J T LYNCH	HQ	S TIWARI	NGT 00-051-164	8046
46	OLD DOMINION UNIV	F C OWENS	HQ	G V SELBY	NGT 00-070-189	8049
46	OLD DOMINION UNIV	E J PRIOR	LARC	J HUANG	NGT 00-070-300	8054
46	UNIV VIRGINIA	J A TANNER	LARC	A K NOOR	NAG 1-1180	8071
46	UNIV VIRGINIA	D P FLEMING	LERC	P E ALLAIRE	NAG 3-909	8080
46	UNIV VIRGINIA	G V BROWN	LERC	P E ALLAIRE	NAG 3-1334	8082
46	UNIV VIRGINIA	J A SALZMAN	LERC	H HAJ-HARIRI	NAG 3-1396	8085
46	UNIV VIRGINIA	S M ARNOLD	LERC	M J PINDER	NAS 3-26571	8116
46	UNIV VIRGINIA	F C OWENS	HQ	G LAUFER	NGT 00-050-714	8130
46	UNIV VIRGINIA	F MONTEGANI	LERC	C R KNOSPE	NGT 00-050-941	8142
46	UNIV VIRGINIA	J T LYNCH	LARC	H HAJ-HARIRI	NGT 00-070-294	8162

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46	VA PLOY INST & ST U	C C POE	LARC	K L REIFSNIDER	NAG 1-1282	8193
46	VA PLOY INST & ST U	C J CAMARDA	LARC	E P SCOTT	NAG 1-1507	8211
46	VA PLOY INST & ST U	G A BOBULA	LERC	W F O'BRIEN	NAG 3-1266	8217
46	VA PLOY INST & ST U	S M GENG	LERC	A A KORNHAUSER	NAG 3-1285	8218
46	VA PLOY INST & ST U	F C OWENS	HQ	J N REDDY	NGT 00-050-404	8235
46	VA PLOY INST & ST U	F C OWENS	HQ	W F NG	NGT 00-050-439	8237
46	VA PLOY INST & ST U	F C OWENS	HQ	R G KIRK	NGT 00-050-565	8240
46	VA PLOY INST & ST U	F C OWENS	HQ	J N REDDY	NGT 00-050-593	8241
46	VA PLOY INST & ST U	E PRIOR	LARC	J R MAHN	NGT 00-051-108	8245
46	VA PLOY INST & ST U	E PRIOR	LARC	D A DILLARD	NGT 00-051-116	8246
46	VA PLOY INST & ST U	E J PRIOR	LARC	U VANDSBORGER	NGT 00-070-269	8249
46	VA PLOY INST & ST U	E PRIOR	LARC	L A ROC	NGT 00-070-298	8251
46	UNIV WASHINGTON	C P SHORE	LARC	A F EMERY	NAG 1-41	8275
46	WASHINGTON ST U	F P CHIARAMONTE	LERC	J N CHUNG	NAG 3-1387	8433
46	WASHINGTON ST U	J ALEXANDER	HQ	J N CHONG	NGT 00-050-904	8441
46	WASHINGTON ST U	M MOORE	ARC	C PENESHKI	NGT 00-050-971	8442
46	WASHINGTON ST U	J T LYNCH	HQ	C PEZESHKI	NGT 00-051-027	8443
46	WEST VIRGINIA UNIV	F C OWENS	HQ	S DWIVEDI	NGT 00-050-687	8462
46	WEST VIRGINIA UNIV	F C OWENS	HQ	S N DWIVEDI	NGT 00-050-697	8463
46	WEST VIRGINIA UNIV	F C OWENS	HQ	S N DWIVEDI	NGT 00-050-752	8464
46	WEST VIRGINIA UNIV	E J PRIOR	LARC	J M KUHLMAN	NGT 00-050-868	8465
46	WEST VIRGINIA UNIV	B MARTIN	KSC	S N DWIVEDI	NGT 00-051-098	8466
46	WEST VIRGINIA UNIV	F C OWENS	HQ	S N DWIVEDI	NGT 00-070-144	8468
46	WEST VIRGINIA UNIV	F SIX	MSFC	S N DWIVEDI	NGT 00-070-255	8469
46	UNIV WISC-MILWAUKEE	J A PLATT	LERC	S H CHAN	NAG 3-1381	8619
46	UNIV WISC-MILWAUKEE	E K UNGAR	JSC	S H CHAN	NAG 9-525	8620
46	U PUERTO RICO-MAYAGZ	L G HORTA	LARC	L SUAREZ	NAG 1-1496	8647
46	UNIV WALES	J H STARNES	LARC	F W WILLIAMS	NCCW 2	8679
47	ALA A&M UNIV	T GLASGOW	LERC	R B LAL	NAG 3-1429	1001
47	AUBURN UNIV	S J GENTZ	MSFC	R C WILCOX	NAG 8-188	1030
47	AUBURN UNIV	F C OWENS	HQ	B Z JANG	NGT 00-050-598	1048
47	AUBURN UNIV	F SIX	MSFC	B Z JANG	NGT 00-051-043	1052
47	TUSKEGEE UNIV	J L RANDALL	MSFC	S JEGLANI	NAG 8-131	1061
47	UNIV ALA-BIRMINGHAM	F C OWENS	HQ	B ANDREWS	NGT 00-050-566	1079
47	UNIV ALA-BIRMINGHAM	J T LYNCH	HQ	J B ANDREWS	NGT 00-050-614	1080
47	UNIV ALA-BIRMINGHAM	F SIX	MSFC	B ANDREWS	NGT 00-050-877	1081
47	UNIV ALA-BIRMINGHAM	D A HOLLAND	HQ	R ANDREWS	NGT 00-051-080	1084
47	UNIV ALA-HUNTSVILLE	J L JONES	LARC	J GREGORY	NAG 1-1228	1085
47	UNIV ALA-HUNTSVILLE	F W LESLIE	MSFC	R J HUNG	NAG 8-129	1095
47	UNIV ALA-HUNTSVILLE	R P WHITTEN	HQ	G R KARR	NAGW 812	1125
47	UNIV ALA-HUNTSVILLE	M B ROBINSON	MSFC	G WORKMAN	NCC 8-19	1160
47	UNIV ALA-UNIV	T L ST CLAIR	LARC	J S THRASHER	NAG 1-1069	1181
47	UNIV ALA-UNIV	F E LEDBETTER III	MSFC	A L HIGHSMITH	NCC 8-23	1197
47	UNIV ALA-UNIV	D K RUSSELL	HQ	R G BATSON	NGT 00-070-303	1199
47	ARIZONA ST U	J K ALEXANDER	HQ	G B RAUPP	NAGW 1654	1282
47	UNIV OF ARIZONA	T K GLASGOW	LERC	C F CHEN	NAG 3-1268	1340
47	UNIV OF ARIZONA	A CHAIT	LERC	D R POIRIER	NAG 3-1446	1344
47	UNIV OF ARIZONA	M P VOLZ	MSFC	K A MATTHEWS	NAG 8-944	1379
47	UNIV OF ARIZONA	P H RHODES	MSFC	J C BAYGENTS	NAG 8-948	1380
47	UNIV OF ARIZONA	F C OWENS	HQ	B FABES	NGT 00-050-737	1540
47	CALIF INST OF TECH	I D BROWNE	JSC	D S BURNETT	NAG 9-94	1608
47	SAN JOSE ST U	D B LEISER	ARC	G SELVADURAY	NAG 2-848	1800
47	SAN JOSE ST U	S R RICCIETIELLO	ARC	R N ANDERSON	NCC 2-3	1827
47	SAN JOSE ST U	S R RICCIETIELLO	ARC	G SELVADURAY	NCC 2-195	1830
47	UNIV CAL-LOS ANGELES	R HOLANDA	LERC	R F BUNSHAH	NAG 3-451	2332
47	UNIV CAL-LOS ANGELES	R D NORBE	LERC	A J ARDELL	NAG 3-1325	2334
47	UNIV CAL-LOS ANGELES	J GLASGOW	LERC	D DURIAN	NAG 3-1419	2335
47	U CAL-SANTA BARBARA	H G NELSON	ARC	M R SHANABARGER	NCC 2-63	2652
47	COL SCHOOL OF MINES	R A OUTLAW	LARC	M E EBERHART	NAG 1-1475	2745
47	COL SCHOOL OF MINES	T K GLASGOW	LERC	D READY	NAG 3-1409	2747



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47	COL SCHOOL OF MINES	T K GLASGOW	LERC	J J MOORE	NCC 3-215	2748
47	COL SCHOOL OF MINES	E S NELSON	LERC	J J MOORE	NCC 3-289	2749
47	UNIV COL-Boulder	T K GLASGOW	LERC	W B KRANTZ	NAG 3-1278	2818
47	UNIV COL-Boulder	G E HALL	MSFC	S STURE	NAS 8-38779	2999
47	UNIV COL-Boulder	F P CHIARAMONTE	LERC	J KOSTER	NCC 3-210	3008
47	UNIV COL-Boulder	H C DEGROH	LERC	P D WEIDMAN	NCC 3-272	3009
47	UNIV DENVER	W H PROSSER	LARC	M R GORMAN	NAG 1-1450	3081
47	UNIV CONNECTICUT	J C NEWMAN	LARC	A J MCEVILY	NAG 1-1382	3100
47	UNIV CONNECTICUT	J P BARRENGER	LERC	E JORDAN	NAS 3-26619	3107
47	YALE UNIV	D REISS	MSFC	R E APFEL	NAG 8-947	3124
47	UNIV DELAWARE	W C JACKSON	LARC	T CHOU	NAG 1-1383	3145
47	GEORGE WASHINGTON U	T K GLASGOW	LERC	H H HOBBS	NAG 3-1162	3176
47	FLORIDA ATLANTIC U	A CHAIT	LERC	C T TSAI	NAG 3-1314	3269
47	FLORIDA ATLANTIC U	R V MINER	LERC	S M LIPKA	NAG 3-1435	3271
47	FLORIDA ST U	T K GLASGOW	LERC	J VINALS	NAG 3-1284	3298
47	UNIV OF CENTRAL FLA	J C BARNES	LARC	B CHAI	NAG 1-1502	3342
47	UNIV OF CENTRAL FLA	R LEE	KSC	D V DESAI	NAG10-121	3356
47	UNIV FLORIDA	W C JACKSON	LARC	B V SANKAR	NAG 1-1226	3370
47	UNIV FLORIDA	R A OUTLAW	LARC	G B HOFUND	NAG 1-1262	3371
47	UNIV FLORIDA	G J SANTORO	LERC	G J ABBACHIAN	NAG 3-1096	3377
47	UNIV FLORIDA	M F VOLZ	MSFC	M J KAUFMAN	NAG 8-946	3387
47	UNIV FLORIDA	D A WATRING	MSFC	R NARAYANAN	NCC 8-20	3409
47	UNIV FLORIDA	F C OWENS	HQ	M J KAUFMAN	NGT 00-050-631	3411
47	UNIV FLORIDA	D K RUSSELL	HQ	M J KAUFMAN	NGT 00-070-282	3417
47	GEORGIA INST OF TECH	T K O'BRIEN	LARC	L W REHFELD	NAG 1-637	3478
47	GEORGIA INST OF TECH	G MACRAE	LERC	W OHLINGER	NAG 3-1239	3507
47	GEORGIA INST OF TECH	C D WILSON	MSFC	H A ERNST	NAG 8-243	3515
47	GEORGIA INST OF TECH	H R GRAY	LERC	S D ANTOLOVICH	NCC 3-116	3543
47	GEORGIA INST OF TECH	F C OWENS	HQ	J D MUZZY	NGT 00-050-705	3552
47	GEORGIA INST OF TECH	E PRIOR	LARC	A SAXENA	NGT 00-051-112	3560
47	UNIV IDAHO	H G NELSON	ARC	F H FROES	NCA 2-545	3715
47	NORTHWESTERN UNIV	A CHAIT	LERC	S H DAVIS	NAG 3-747	3737
47	NORTHWESTERN UNIV	A CHAIT	LERC	M G WORSTER	NAG 3-1405	3739
47	NORTHWESTERN UNIV	T K GLASGOW	LERC	P W VORHEES	NAG 3-1417	3740
47	NORTHWESTERN UNIV	R L THOM	MSFC	G B OLSON	NAG 8-144	3749
47	NORTHWESTERN UNIV	D A FRAZIER	MSFC	P W VOORHEES	NAG 8-769	3750
47	NORTHWESTERN UNIV	D BARRETT	LARC	UNAVAILABLE	NAS 1-18877	3760
47	NORTHWESTERN UNIV	R R BOWMAN	LERC	D E BOSS	NAS 3-26810	3761
47	NORTHWESTERN UNIV	R L THOM	MSFC	W D SPROUL	NAS 8-37686	3762
47	UNIV ILLINOIS-CHICGO	N N NEMETH	LERC	A CHUDNOVSKY	NAG 3-1034	3875
47	UNIV ILLINOIS URBANA	H G NELSON	ARC	I M ROBERTSON	NAG 2-852	3891
47	UNIV ILLINOIS URBANA	T K GLASGOW	LERC	A J PEARLSTEIN	NAG 3-1121	3896
47	UNIV ILLINOIS URBANA	A CHAIT	LERC	J A DANTZIG	NAG 3-1286	3901
47	UNIV ILLINOIS URBANA	T K GLASGOW	LERC	J A DANTZIG	NAG 3-1351	3902
47	UNIV ILLINOIS URBANA	R POORMAN	MSFC	J MAZUMDER	NAG 8-934	3919
47	UNIV ILLINOIS URBANA	J K ALEXANDER	HQ	J A DANTZIG	NAGW 1683	3925
47	INDIANA ST U	K J BOWLES	LERC	M K AHN	NAG 3-952	3966
47	PURDUE UNIV	D ELLIS	LERC	R E TAYLOR	NAS 3-26183	4041
47	PURDUE UNIV	D ELLIS	LERC	R TAYLOR	NAS 3-26940	4042
47	PURDUE UNIV	G D ROBERTS	LERC	J M CARUTHERS	NCC 3-128	4045
47	IOWA ST U	A VARY	LERC	D K HSU	NAG 3-1322	4103
47	UNIV IOWA	H C DEGROH	LERC	C BECKERMAN	NCC 3-290	4179
47	KANSAS ST U	H G MAAHS	LARC	P M SHERWOOD	NCC 1-161	4193
47	SOUTHERN U & A&M COL	G FICHTL	MSFC	R DIWAN	NAG 8-252	4288
47	TULANE UNIV	B GROSS	LERC	A A RUBENSTEIN	NAG 3-967	4296
47	JOHNS HOPKINS UNIV	S S WELCH	LARC	R S POTEMBER	NAG 1-1247	4324
47	JOHNS HOPKINS UNIV	A VARY	LERC	R E GREENE JR.	NAG 3-1431	4327
47	UNIV MD-COLLEGE PARK	A D FREED	LERC	H W HASLACH	NAG 3-1321	4463
47	MASS INST OF TECH	D E BOWLES	LARC	H L MCMANUS	NAG 1-1463	4764
47	MASS INST OF TECH	R T BHATT	LERC	J S HAGGERTY	NAG 3-845	4784

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47	MASS INST OF TECH	H E KAUTZ	LERC	J H WILLIAMS	NAG 3-1105	4789
47	MASS INST OF TECH	I D BROWNE	JSC	R G PRINN	NAG 9-108	4854
47	MASS INST OF TECH	B CARPENTER	HQ	J SZEKELY	NGT 00-051-069	4974
47	MASS INST OF TECH	D A HOLLAND	HQ	P CEBE	NGT 00-051-136	4975
47	NORTHEASTERN UNIV	A VARY	LERC	H N HASEMI	NAG 3-1129	4987
47	NORTHEASTERN UNIV	F C OWENS	HQ	P W VOORHEES	NGT 00-050-627	4989
47	WORCESTER POLY INST	F C OWENS	HQ	R D SISSON	NGT 00-050-827	5060
47	MICHIGAN TECH U	T K GLASGOW	LERC	A HELLAWELL	NAG 3-560	5085
47	MICHIGAN TECH U	A CHAIT	LERC	A HELLAWELL	NAG 3-1462	5087
47	MICHIGAN TECH U	T K GLASGOW	LERC	J D DELA'O	NCC 3-183	5094
47	MICHIGAN TECH U	F C OWENS	HQ	A HELLAWELL	NGT 00-070-154	5100
47	U MICHIGAN-ANN ARBOR	W D BREWER	LARC	A GHOSH	NAG 1-1317	5108
47	U MICHIGAN-ANN ARBOR	R T BHATT	LERC	J W HOLMES	NAS 3-26820	5203
47	U MICHIGAN-ANN ARBOR	R T BHATT	LERC	J W HOLMES	NAS 3-27141	5204
47	U MICHIGAN-ANN ARBOR	R D NOEBE	LERC	R GIBALA	NCC 3-76	5223
47	U MICHIGAN-ANN ARBOR	F SIX	MSFC	D C MARTIN	NGT 00-051-120	5243
47	U MINN-MNPLS-ST PAUL	I D BROWNE	JSC	A O NIER	NAG 9-110	5288
47	MISSISSIPPI STATE U	L A FIKES	MSFC	W B HALL	NAG 8-545	5352
47	U MISSOURI-COLUMBIA	W M DUVAL	LERC	S K LOYALKA	NAG 3-1420	5379
47	WASHINGTON UNIV	L A TEICHMAN	LARC	E ZINNER	NAG 1-1174	5398
47	WASHINGTON UNIV	H G NELSON	ARC	S M SASTRY	NAG 2-865	5402
47	U NEBRASKA-LINCOLN	K K GUPTA	ARC	C W MARTIN	NCA 2-665	5494
47	PRINCETON UNIV	T K GLASGOW	LERC	P M CHAIKIN	NAG 3-1158	5635
47	PRINCETON UNIV	J C JOHNSTON	LERC	I GLASSMAN	NAG 3-1418	5639
47	NEW MEX ST U-LAS CR	A VARY	LERC	V K CHOO	NAG 3-1328	5731
47	CLARKSON UNIV	L R PURVES	GSFC	W R WILCOX	NAG 5-1809	5828
47	RENSSELAER POLY INST	A CHAIT	LERC	J D COLE	NAG 3-1413	6067
47	RENSSELAER POLY INST	D C GILLIES	MSFC	A G OSTROGORSKY	NAG 8-952	6070
47	RENSSELAER POLY INST	E A WINSA	LERC	M E GLICKSMAN	NAS 3-25368	6078
47	ST U OF NY-ALBANY	D C GILLIES	MSFC	M DUDLEY	NAG 8-891	6109
47	ST U OF NY-BUFFALO	B GROSS	LERC	R C WETHERHOLD	NAG 3-862	6138
47	ST U NY-STONY BROOK	T K GLASGOW	LERC	H S DHADWAL	NCC 3-241	6185
47	NO CAROLINA A&T ST U	R V MINER	LERC	G J FILATOV	NAG 3-1432	6262
47	NC ST U.-RALEIGH	C C POE	LARC	C M PASTORE	NAG 1-1212	6282
47	NC ST U.-RALEIGH	L A TEICHMAN	LARC	D P GRIFFIS	NAG 1-1214	6283
47	NC ST U.-RALEIGH	J K ALEXANDER	HQ	K J BACHMANN	NAGW 2865	6301
47	BALDWIN-WALLACE COL	A F RATAJCZAK	LERC	J GROSE	NAG 3-1528	6360
47	CASE WESTERN RES U	J A POWELL	LERC	P PIROUZ	NAG 3-758	6367
47	CASE WESTERN RES U	B GROSS	LERC	R BALLARINI	NAG 3-856	6371
47	CASE WESTERN RES U	R T BHATT	LERC	D L FEKE	NAG 3-1141	6380
47	CASE WESTERN RES U	A CHAIT	LERC	A J DAHM	NAG 3-1412	6394
47	CASE WESTERN RES U	R L THOMPSON	LERC	S OSTRACH	NAG 3-1538	6400
47	CASE WESTERN RES U	T K GLASGOW	LERC	V LAXMANAN	NCC 3-74	6412
47	CASE WESTERN RES U	H R GRAY	LERC	G M MICHAL	NCC 3-94	6415
47	CASE WESTERN RES U	S R LEVINE	LERC	M R DEGUIRE	NCC 3-129	6421
47	CASE WESTERN RES U	M H JASKOWIAK	LERC	N P BANSAL	NCC 3-133	6422
47	CASE WESTERN RES U	S R LEVINE	LERC	W S WILLIAMS	NCC 3-139	6423
47	CASE WESTERN RES U	H R GRAY	LERC	G M MICHAL	NCC 3-144	6426
47	CASE WESTERN RES U	T K GLASGOW	LERC	J A MANN	NCC 3-166	6428
47	CASE WESTERN RES U	T K GLASGOW	LERC	J F WALLACE	NCC 3-170	6429
47	CASE WESTERN RES U	S C FARMER	LERC	K P LAGERLOF	NCC 3-236	6435
47	CASE WESTERN RES U	J A DICARLO	LERC	K D LAGERLOFF	NCC 3-244	6437
47	CASE WESTERN RES U	T K GLASGOW	LERC	J J LEWANDOWSKI	NCC 3-250	6438
47	CASE WESTERN RES U	T K GLASGOW	LERC	W S WILLIAMS	NCC 3-254	6440
47	CASE WESTERN RES U	T K GLASGOW	LERC	J A MANN	NCC 3-266	6445
47	CASE WESTERN RES U	T K GLASGOW	LERC	J A MANN	NCC 3-269	6446
47	CASE WESTERN RES U	A CHAIT	LERC	V K PINES	NCC 3-275	6447
47	CASE WESTERN RES U	M D BETHEA	LERC	F I MERAT	NCC 3-292	6450
47	CASE WESTERN RES U	T K GLASGOW	LERC	D MATTHIESEN	NCC 3-293	6451
47	CASE WESTERN RES U	M V NATHAL	LERC	R M AIKEN	NCC 3-295	6453

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47	CASE WESTERN RES U	K K DE GROH	LERC	J F WALLACE	NCC 3-296	6454
47	CASE WESTERN RES U	R T BHATT	LERC	D L FEKE	NCC 3-298	6455
47	CASE WESTERN RES U	M BETHEA	LERC	F L MERAT	NCC 3-313	6456
47	CASE WESTERN RES U	F C OWENS	HQ	G M MICHAL	NGT 00-050-632	6460
47	CLEVELAND ST U	F I HURWITZ	LERC	J H HEMANN	NAG 3-749	6479
47	CLEVELAND ST U	J FERRANTE	LERC	H SCHLOSSER	NAG 3-1313	6488
47	CLEVELAND ST U	J M SAVINO	LERC	A PINTZ	NCC 3-77	6498
47	CLEVELAND ST U	J P GYEKENYESI	LERC	J H HEMANN	NCC 3-81	6499
47	CLEVELAND ST U	H R GRAY	LERC	S N TEWARI	NCC 3-119	6502
47	CLEVELAND ST U	S R LEVINE	LERC	J H HEMANN	NCC 3-138	6505
47	CLEVELAND ST U	T K GLASGOW	LERC	S N TEWARI	NCC 3-142	6506
47	CLEVELAND ST U	H R GRAY	LERC	S N TEWARI	NCC 3-151	6508
47	CLEVELAND ST U	C E LOWELL	LERC	S N TEWARI	NCC 3-190	6511
47	CLEVELAND ST U	L A GREENBAUER-SENG	LERC	S N TEWARI	NCC 3-205	6515
47	CLEVELAND ST U	D R HULL	LERC	S N TEWARI	NCC 3-228	6516
47	CLEVELAND ST U	T K GLASGOW	LERC	S N TEWARI	NCC 3-242	6518
47	CLEVELAND ST U	T K GLASGOW	LERC	M AZZAM	NCC 3-274	6521
47	CLEVELAND ST U	L A GREENBAUER-SENG	LERC	S N TEWARI	NCC 3-285	6522
47	CLEVELAND ST U	R R BOWMAN	LERC	S N TEWARI	NCC 3-287	6523
47	CLEVELAND ST U	A CHAIT	LERC	S TEWARI	NCC 3-299	6524
47	CLEVELAND ST U	G BAAKLINI	LERC	J HEMANN	NCC 3-303	6526
47	CLEVELAND ST U	N NEMETH	LERC	J HEMANN	NCC 3-304	6527
47	CLEVELAND ST U	N NEMETH	LERC	S DUFFY	NCC 3-305	6528
47	CLEVELAND ST U	N NEMETH	LERC	J HEMANN	NCC 3-306	6529
47	CLEVELAND ST U	N NEMETH	LERC	S DUFFY	NCC 3-310	6530
47	CLEVELAND ST U	A VARY	LERC	J HEMANN	NCC 3-316	6531
47	KENT ST U	N D PILTCH	LERC	C VARGAS-ABURTO	NCC 3-189	6547
47	OHIO ST U	W D BREWER	LARC	G S DAEHN	NAG 1-1357	6559
47	OHIO ST U	H J SCHWARTZ	LERC	T ALTAN	NAG 3-930	6567
47	OHIO ST U	G Y BAAKLINI	LERC	S I ROKHLIN	NAG 3-1220	6573
47	OHIO ST U	A CHAIT	LERC	S A KORPELA	NAG 3-1308	6574
47	OHIO ST U	A CHAIT	LERC	S TANVEER	NAG 3-1415	6577
47	OHIO ST U	T K GLASGOW	LERC	P K DUTTA	NAG 3-1416	6578
47	OHIO ST U	T K GLASGOW	LERC	D G STROUD	NAG 3-1437	6579
47	OHIO ST U	N P BANSAL	LERC	C H DRUMMOND	NCC 3-234	6623
47	OHIO UNIV	T K GLASGOW	LERC	M K ALAM	NCC 3-227	6640
47	UNIV AKRON	K J BOWLES	LERC	R K EBY	NAG 3-1289	6664
47	UNIV AKRON	G D ROBERTS	LERC	E A MEINECKE	NAG 3-1305	6665
47	UNIV AKRON	G D ROBERTS	LERC	F N KELLEY	NAG 3-1498	6675
47	UNIV AKRON	G P ROBERTS	LERC	G W YOUNG	NCC 3-104	6676
47	UNIV AKRON	G D ROBERTS	LERC	W K BINIENDA	NCC 3-188	6682
47	UNIV AKRON	B N ROSENTHAL	LERC	C BATUR	NCC 3-209	6683
47	UNIV AKRON	T K GLASGOW	LERC	C BATUR	NCC 3-211	6684
47	UNIV AKRON	M B MEYER	LERC	C BATUR	NCC 3-231	6686
47	UNIV AKRON	T K GLASGOW	LERC	H M CHEUNG	NCC 3-240	6687
47	UNIV AKRON	L A GREENBUER-SENG	LERC	H M CHEUNG	NCC 3-314	6689
47	UNIV AKRON	F C OWENS	HQ	R K EBY	NGT 00-070-235	6691
47	UNIV CINCINNATI	F C OWENS	HQ	N GAYARAMAN	NGT 00-050-712	6723
47	UNIV CINCINNATI	F MONTEGANI	LERC	R Y LIN	NGT 00-050-982	6724
47	UNIV TOLEDO	A VARRY	LERC	K CIOS	NAG 3-1422	6753
47	WRIGHT ST U	N S JACOBSON	LERC	G M MEHROTRA	NAG 3-1233	6782
47	CARNEGIE-MELLON UNIV	H G NELSON	ARC	A W THOMPSON	NAG 2-850	6872
47	CARNEGIE-MELLON UNIV	H G NELSON	ARC	A W THOMPSON	NCA 2-602	6884
47	CARNEGIE-MELLON UNIV	F C OWENS	HQ	A W THOMPSON	NGT 00-050-823	6893
47	DREXEL UNIV	D J ROTH	LERC	M A EL-SHERIF	NAG 3-1347	6907
47	LAFAYETTE COLLEGE	R H TITRAN	LERC	M UZ	NCC 3-267	6920
47	LEHIGH UNIV	I D BROWNE	JSC	J I GOLDSTEIN	NAG 9-45	6925
47	PA ST U.-UNIV. PARK	W L VAUGHN	LARC	R ROY	NAG 1-1377	6948
47	PA ST U.-UNIV. PARK	D L NG	LERC	T R SHROUT	NAG 3-1225	6970
47	PA ST U.-UNIV. PARK	R L DEWITT	LERC	R M GERMAN	NAG 3-1287	6972

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47	PA ST U.-UNIV. PARK	A VARY	LERC	J L ROSE	NAG 3-1365	6975
47	PA ST U.-UNIV. PARK	B F QUIGLEY	HQ	R E TRESSLER	NAGW 1381	7022
47	BROWN UNIV	I D BROWNE	JSC	P C HESS	NAG 9-109	7148
47	CLEMSON UNIV-CLEMSON	S A WISE	LARC	G H HAERTLING	NAG 1-1108	7213
47	CLEMSON UNIV-CLEMSON	W E MILLER	LARC	G H HAERTLING	NAG 1-1301	7215
47	CLEMSON UNIV-CLEMSON	G L FARLEY	LARC	J M KENNEDY	NCC 1-127	7235
47	UNIV SOUTH CAROLINA	C E HARRIS	LARC	M SUTTON	NAG 1-1489	7250
47	TENNESSEE TECH U	C E WILKERSON	MSFC	D A WILSON	NCC 8-8	7297
47	UNIV TENN-KNOXVILLE	M V NATHAL	LERC	B F OLIVER	NAG 3-876	7302
47	UNIV TENN-KNOXVILLE	K J BOWLES	LERC	M S MADHUKAR	NAG 3-1480	7304
47	VANDERBILT UNIV	J L JONES	LARC	D L KINSER	NAG 1-1464	7330
47	VANDERBILT UNIV	D S TUCKER	MSFC	D L KINSER	NAG 8-156	7338
47	VANDERBILT UNIV	S J GENTZ	MSFC	G T HAHN	NAG 8-205	7339
47	VANDERBILT UNIV	M B ROBINSON	MSFC	R J BAYUZICK	NAG 8-765	7340
47	VANDERBILT UNIV	W ORAN	HQ	K Y BAYUZIK	NAGW 810	7345
47	LAMAR UNIV	T SULLIVAN	JSC	J L JORDAN	NAG 9-619	7376
47	LAMAR UNIV	G ECORD	JSC	V NGUYEN	NAG 9-698	7385
47	RICE UNIV	W L CASTNER	JSC	F R BROTZEN	NAG 9-447	7412
47	RICE UNIV	E L CHRISTIANSEN	JSC	Y C ANGEL	NAG 9-457	7413
47	TEXAS A&M UNIV	J L JONES	LARC	T STRGANAC	NAG 1-1297	7466
47	TEXAS A&M UNIV	I S SMITH	GSFC	T W STRGANAC	NAG 5-673	7485
47	TEXAS A&M UNIV	W L CASTNER	JSC	J HERRERA	NAG 9-395	7499
47	TEXAS A&M UNIV	J E BURKE	JSC	S SRINIVASAN	NAG 9-533	7507
47	TEXAS A&M UNIV	J K ALEXANDER	HQ	R K PANDEY	NAGW 1590	7519
47	TEXAS SOUTHERN UNIV	D HENNINGER	JSC	R WILSON	NAG 9-423	7575
47	U TX-AUSTIN	T L GROBSTEIN	LERC	J K TIEN	NAG 3-1085	7700
47	U TX-AUSTIN	E L CHRISTIANSEN	JSC	C H YEW	NAG 9-114	7716
47	U TX-AUSTIN	E CHRISTIANSEN	JSC	C YEW	NAG 9-661	7728
47	U TX-EL PASO	S L KOONTZ	JSC	L E MURR	NAG 9-481	7830
47	U TX-EL PASO	A C NUNES	MSFC	J C MCCLURE	NAS 8-38662	7833
47	U TX-EL PASO	A C NUNES	MSFC	J C MCCLURE	NAS 8-39602	7834
47	U TX-EL PASO	F C OWENS	HQ	J MCCLURE	NGT 00-070-245	7837
47	U TX-EL PASO	F C OWENS	HQ	J C MCCLURE	NGT 00-070-246	7838
47	U TX-EL PASO	F SIX	MSFC	J C MCCLURE	NGT 00-070-297	7839
47	U TX-EL PASO	D K RUSSELL	HQ	L E MURR	NGT 00-070-343	7840
47	U TEXAS-SAN ANTONIO	H G NELSON	ARC	H F BRINSON	NCC 2-724	7850
47	UNIV UTAH	J R REEDER	LARC	S R SWANSON	NAG 1-1379	7864
47	CHRISTOPHER NWPORT C	F ALLAMBY	LARC	R SELIM	NAG 1-1242	7915
47	GEORGE MASON UNIV	L R PURVES	GSFC	E D COLE	NAG 5-1495	7951
47	GEORGE MASON UNIV	L R PURVES	GSFC	E D COLE	NAG 5-2320	7955
47	HAMPTON UNIV	R A OUTLAW	LARC	K S HAN	NAG 1-1110	7970
47	LONGWOOD COLLEGE	A L FRIPP	LARC	P G BARBER	NAG 1-627	7982
47	NORFOLK ST U	M A MEADOR	LERC	L MATTIX	NAG 3-1371	7988
47	OLD DOMINION UNIV	R A OUTLAW	LERC	R L ASH	NAG 1-1140	8006
47	UNIV VIRGINIA	D L DICUS	LARC	R P GANGLOFF	NAG 1-745	8064
47	UNIV VIRGINIA	R V MINER	LERC	M J PINDERA	NAG 3-1319	8081
47	UNIV VIRGINIA	S L VENNERI	HQ	H N WADLEY	NAGW 1692	8103
47	UNIV VIRGINIA	T W CROOKER	HQ	W D PILKEY	NAGW 2050	8107
47	VA PLOY INST & ST U	D R TENNEY	LARC	F W STEPHENSON	NAG 1-343	8170
47	VA PLOY INST & ST U	C C POE	LARC	P IFJU	NAG 1-1429	8204
47	VA PLOY INST & ST U	S A WISE	LARC	E P SCOTT	NAG 1-1500	8210
47	VA PLOY INST & ST U	A VARY	LERC	E G HENNEKE	NAS 3-26827	8228
47	WEST VIRGINIA UNIV	C C POE	LARC	T L NORMAN	NAG 1-1381	8451
47	MARQUETTE UNIV	A F WHITAKER	MSFC	W E BROWER	NAG 8-176	8478
47	MARQUETTE UNIV	A F WHITAKER	MSFC	W E BROWER	NAG 8-237	8479
47	UNIV WISC-MADISON	R L THOM	MSFC	D S STONE	NAG 8-153	8540
47	UNIV WISC-MADISON	M B ROBINSON	MSFC	J H PEREPEZKO	NAG 8-771	8541
47	UNIV WISC-MADISON	D A HOLLAND	HQ	R F COOPER	NGT 00-051-067	8614
47	UNIV WISC-MADISON	D A HOLLAND	HQ	J PEREPEZKO	NGT 00-051-133	8616
47	UNIV WYOMING	N J JOHNSTON	LARC	D F ADAMS	NAG 1-1294	8626

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FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
49	AUBURN UNIV	J E HENGEL	MSFC	W A FOSTER	NAG 8-683	1031
49	AUBURN UNIV	J E HENGEL	MSFC	W A FOSTER	NAG 8-923	1033
49	AUBURN UNIV	F C OWENS	HQ	B Z JANG	NGT 00-050-824	1050
49	OAKWOOD COLLEGE	G H FICHTL	MSFC	H R DESSAU	NCC 8-10	1056
49	TUSKEGEE UNIV	T L HARDY	LERC	P R RAY	NAG 3-726	1058
49	UNIV ALA-HUNTSVILLE	R E DOTSON	MSFC	G R HOUGH	NCC 8-28	1163
49	UNIV ALA-HUNTSVILLE	F SIX	MSFC	M ABUSHAGUR	NGT 00-050-432	1165
49	UNIV ALA-HUNTSVILLE	F C OWENS	HQ	L M FREEMAN	NGT 1-2099	1179
49	UNIV ALA-HUNTSVILLE	A S MCGEE	HQ	G R KARR	NGT 1-8021	1180
49	UNIV ALA-UNIV	R A WEIR	MSFC	T HASKEW	NAG 8-240	1190
49	NORTHERN ARIZONA U	Y B FREEMAN	HQ	C N HOLLAND	NGT 00-090-028	1323
49	UNIV OF ARIZONA	M STUCKER	MSFC	K RAMABALLI	NAG 8-883	1374
49	UNIV OF ARIZONA	B F QUIGLEY	HQ	J S LEWIS	NAGW 1332	1408
49	CALIF INST OF TECH	A S MCGEE	HQ	C MERKEL	NGT 00-060-009	1699
49	CALIF INST OF TECH	A S MCGEE	HQ	A L ALBEE	NGT 5-3790	1704
49	CAL ST U-FULLERTON	R L PATTERSON	LERC	R C SUICH	NAG 3-1100	1738
49	CAL ST U-LOS ANGELES	B WHITE	HQ	M RANDLE	NGT 00-090-051	1745
49	CAL ST U-LOS ANGELES	B WHITE	HQ	R LANDIS	NGT 00-090-064	1746
49	CAL ST U-NORTHRIDGE	M S MARGOLIS	HQ	C MORNING	NGT 00-090-032	1753
49	CAL ST U-NORTHRIDGE	B WHITE	HQ	M MACIAS	NGT 00-090-055	1754
49	D-Q UNIV	B L WHITE	HQ	A LOUFAS	NGT 00-090-054	1758
49	STANFORD UNIV	A S MCGEE	HQ	D BERSHADER	NGT 5-20412	2034
49	UNIV CALIF-BERKELEY	G MEYER	ARC	S S SASTRY	NAG 2-243	2042
49	UNIV CALIF-BERKELEY	D P STOCKER	LERC	P J PAGNI	NAG 3-443	2050
49	UNIV CALIF-BERKELEY	S OLSON	LERC	A C FERNANDEZ-PELLO	NAG 3-1252	2052
49	UNIV CALIF-IRVINE	H D ROSS	LERC	W A SIRIGNANO	NAG 3-627	2287
49	UNIV CAL-LOS ANGELES	K W ILIFF	ARC	A V BALAKRISHNAN	NCC 2-374	2443
49	UNIV CAL-LOS ANGELES	J SOBIESKI	LARC	L A SCHMIT JR	NSG-1490	2457
49	UNIV CAL-SAN DIEGO	H D ROSS	LERC	F A WILLIAMS	NAG 3-1081	2484
49	UNIV CAL-SAN DIEGO	L D CAUDILL	HQ	P M CHAU	NASW 4507	2577
49	UNIV CAL-SAN DIEGO	D K RUSSELL	HQ	A SCHNEIDER	NGT 00-070-317	2601
49	U CAL-SANTA CRUZ	D K RUSSELL	HQ	R HUGHEY	NGT 00-070-337	2697
49	UNIV COL-BOULDER	W K BELVIN	LARC	K C PARK	NAG 1-1200	2794
49	UNIV COL-BOULDER	J A SALZMAN	LERC	R H DAVIS	NAG 3-1277	2817
49	UNIV COL-BOULDER	S KENT	GSFC	G BORN	NAG 5-2332	2882
49	UNIV COL-BOULDER	A P BUKLEY	MSFC	M J BALAS	NAG 8-244	2886
49	UNIV COL-BOULDER	A P BUKLEY	MSFC	M J BALAS	NAG 8-925	2890
49	UNIV COL-BOULDER	M S HIRSCHBEIN	HQ	G W MORGANTHALER	NAGW 1388	2907
49	UNIV SOUTHERN COL	V B HOLLAND	ARC	W R DUNN	NCC 2-373	3097
49	UNIV SOUTHERN COL	L W DOTY	ARC	W R DUNN	NCC 2-609	3098
49	GALLAUDET COLLEGE	M MARGOLIS	HQ	NISSEN	NGT 00-090-013	3167
49	GEORGE WASHINGTON U	R L YANG	LARC	J L WHITESIDES	NAG 1-1353	3172
49	GEORGE WASHINGTON U	W POLAND JR	GSFC	H J HELGERT	NSG-5109	3196
49	HOWARD UNIV	A GOODSON	GSFC	T L GILL	NAG 5-995	3202
49	AMERICAN UNIV	B D SEERY	GSFC	R B KAY	NAG 5-1319	3216
49	FLORIDA A&M UNIV	M S PLECITY	LERC	J L EARLY	NAG 3-1494	3253
49	FLORIDA A&M UNIV	Y B FREEMAN	HQ	W TOLIVER	NGT 00-090-015	3258
49	FLORIDA A&M UNIV	L WARREN	HQ	F S HUMPHRIES	NGT 00-090-030	3259
49	FLORIDA ATLANTIC U	J S LITT	LERC	A DUYAR	NAG 3-1198	3268
49	UNIV OF CENTRAL FLA	J L KOLF	ARC	K ULIANO	NAG 2-750	3344
49	UNIV OF CENTRAL FLA	B MARTIN	KSC	W SMART	NGT 00-051-099	3360
49	UNIV OF CENTRAL FLA	A S MCGEE	HQ	E R HOSLER	NGT 00-060-002	3361
49	UNIV OF CENTRAL FLA	B WHITE	HQ	J SMITH	NGT 00-090-046	3362
49	UNIV OF CENTRAL FLA	B WHITE	HQ	S RICE	NGT 00-090-059	3363
49	UNIV OF CENTRAL FLA	J M MACKALL	HQ	J A SMITH	NGT 00-090-159	3366
49	UNIV FLORIDA	R L YANG	LARC	A JD	NAG 1-1394	3372
49	UNIV FLORIDA	J S CLARK	LARC	N J DIAZ	NAG 3-1293	3380
49	UNIV FLORIDA	F SIX	MSFC	N FITZ-COY	NAG 8-280	3386
49	UNIV MIAMI	R WALES	GSFC	O BROWN	NAS 5-30694	3437
49	UNIV SOUTH FLORIDA	B WHITE	HQ	R E HERRING	NAGW 3050	3453

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FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
49	UNIV SOUTH FLORIDA	B WHITE	HQ	J O'SHIELDS	NGT 00-090-048	3466
49	UNIV SOUTH FLORIDA	B L WHITE	HQ	J A O'SHIELDS	NGT 00-090-060	3467
49	GEORGIA INST OF TECH	H C VYKUKAL	ARC	L H OLSON	NAG 2-806	3499
49	GEORGIA INST OF TECH	M G POTAPCZUK	LERC	L N SANKAR	NAG 3-768	3501
49	GEORGIA INST OF TECH	M P PROCTOR	LERC	R F SALANT	NAG 3-974	3503
49	GEORGIA INST OF TECH	E A PALMER	ARC	T GOVINDARAJ	NCC 2-675	3541
49	GEORGIA INST OF TECH	E A PALMER	ARC	C M MITCHELL	NCC 2-824	3542
49	MOREHOUSE COLLEGE	B PETERS	LARC	W JACKSON	NGT 00-090-025	3584
49	SPELMAN COLLEGE	B WHITE	HQ	E FALCONER	NGT 00-090-049	3588
49	UNIV HAWAII-MANOA	J C MORAKIS	GSFC	S LIN	NAG 5-931	3617
49	UNIV IDAHO	W H MILLER	GSFC	S WHITAKER	NAG 5-1878	3709
49	UNIV IDAHO	P S YEH	GSFC	K CAMERON	NAG 5-1963	3710
49	UNIV IDAHO	P S YEH	GSFC	J VENBRUX	NAG 5-1964	3711
49	UNIV IDAHO	W H MILLER	GSFC	S WHITAKER	NAG 5-1965	3712
49	UNIV IDAHO	P H SMITH	HQ	G K MAKI	NAGW 1406	3713
49	UNIV CHICAGO	F C OWENS	HQ	D MULLER	NGT 00-050-463	3854
49	UNIV ILLINOIS-CHICGO	G MEYER	ARC	R GROSSMAN	NAG 2-513	3871
49	PURDUE UNIV	Y R HICKS	LERC	N M LAURENDEAU	NAG 3-1038	4011
49	PURDUE UNIV	M L BUTLER	MSFC	R E SKELTON	NAG 8-220	4020
49	PURDUE UNIV	A P BUKLEY	MSFC	R E SKELTON	NAG 8-930	4025
49	UNIV NOTRE DAME	J B MCQUILLEN	LERC	M J MCCREADY	NAG 3-1398	4075
49	UNIV NOTRE DAME	W H MILLER	GSFC	D COSTELLO	NAG 5-557	4076
49	UNIV IOWA	F C OWENS	HQ	J ARORA	NGT 00-050-362	4184
49	SOUTHERN U & A&M COL	A S MCGEE	HQ	E HILDRETH	NGT 00-060-004	4291
49	UNIV NEW ORLEANS	H LANGEBERG	SSC	G G GUILBAULT	NAG13-21	4304
49	XAVIER U-LOUISIANA	L WARREN	HQ	G W BAKER	NGT 00-090-004	4310
49	BOWIE STATE COLLEGE	G K JONES	GSFC	S SRIVASTAVA	NAG 5-1054	4316
49	MORGAN ST U	D MENCHAN	GSFC	C WHITE	NCA 5-105	4429
49	MORGAN ST U	D RUSSELL	HQ	E DELOATCH	NGT 00-090-042	4431
49	UNIV MD-COLLEGE PARK	S M WANDER	HQ	M J LEWIS	NAGW 3715	4582
49	UNIV MD-COLLEGE PARK	F C OWENS	HQ	J S BARAS	NGT 00-050-424	4612
49	UNIV MD-COLLEGE PARK	A S MCGEE	HQ	H R BOROSON	NGT 00-060-006	4626
49	U MD-EASTERN SHORE	B WHITE	HQ	B ANDERSON	NGT 00-090-045	4632
49	MASS INST OF TECH	J KOLAROV	LARC	S DUBOWSKY	NAG 1-801	4755
49	MASS INST OF TECH	K CORKER	ARC	R J HANSMAN	NAG 2-716	4773
49	MASS INST OF TECH	J T WALTON	LERC	J L KERREBROCK	NAG 3-1344	4793
49	MASS INST OF TECH	R M SULLIVAN	MSFC	H L MCMANUS	NAG 8-295	4841
49	MASS INST OF TECH	G I JOHNSTON	HQ	E F CRAWLEY	NAGW 1335	4869
49	MASS INST OF TECH	E W BULL	HQ	E F CRAWLEY	NAGW 2014	4886
49	MASS INST OF TECH	F C OWENS	HQ	D LANNING	NGT 00-050-843	4970
49	MICHIGAN ST U	K R SACKSTEDER	LERC	A ATREYA	NAG 3-1271	5071
49	MICHIGAN TECH U	M A REID	LERC	B C CORNILSEN	NAG 3-519	5084
49	U MICHIGAN-ANN ARBOR	D STOCKER	LERC	G M FAETH	NAG 3-1245	5128
49	U MICHIGAN-ANN ARBOR	K R SACKSTEDER	LERC	A ATREYA	NAG 3-1460	5131
49	U MICHIGAN-ANN ARBOR	S C HARTMAN	HQ	F T ULABY	NAGW 1334	5163
49	U MICHIGAN-ANN ARBOR	F C OWENS	HQ	D J WEINTRAUB	NGT23-5802	5250
49	U MINN-MNPLS-ST PAUL	R C TEW	LERC	S V PATANKAR	NAG 3-1024	5276
49	MISSISSIPPI STATE U	W H MILLER	GSFC	W J EBEL	NAG 5-2006	5350
49	MISSISSIPPI STATE U	K SACRSTEDER	LERC	R A ALTENKIRCH	NAS 3-23901	5358
49	MISSISSIPPI STATE U	P K MC CONNAUGHEY	MSFC	J F THOMPSON	NAS 8-36949	5359
49	UNIV SOUTHERN MISS	A S MCGEE	HQ	J E MILLER	NGT 00-060-003	5374
49	U MISSOURI-COLUMBIA	S S PAI	LERC	G D GUTE	NAG 3-1477	5380
49	U MISSOURI-COLUMBIA	R JUDAY	JSC	J KNOPP	NAG 9-466	5382
49	U MISSOURI-COLUMBIA	B W WEBBON	ARC	J B MILES	NCC 2-823	5388
49	DARTMOUTH COLLEGE	M M MELLOTT	HQ	C G FESEN	NAGW 2656	5532
49	DARTMOUTH COLLEGE	F C OWENS	HQ	B O SONNERUP	NGT 00-050-466	5537
49	PRINCETON UNIV	J B HAGGARD	LERC	F L DRYER	NAG 3-1231	5637
49	NEW MEX ST U-LAS CR	W H MILLER	GSFC	F CARDEN	NAG 5-1392	5732
49	NEW MEX ST U-LAS CR	D WILSON	GSFC	F CARDEN	NAG 5-1491	5733
49	NEW MEX ST U-LAS CR	W H MILLER	GSFC	W OSBORN	NAG 5-2142	5740

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49	UNIV ALBUQUERQUE	W H MILLER	GSFC	K CAMERON	NAG 5-2285	5776
49	UNIV NEW MEX	K M PEECOOK	LERC	M S EL-GENK	NAG 3-1346	5778
49	UNIV NEW MEX	P YEHL	GSFC	J VENBRUX	NAG 5-2166	5784
49	UNIV NEW MEX	P YEHL	GSFC	K CAMERON	NAG 5-2190	5785
49	UNIV NEW MEX	W H MILLER	GSFC	S WHITAKER	NAG 5-2191	5786
49	UNIV NEW MEX	W H MILLER	GSFC	S WHITAKER	NAG 5-2204	5787
49	UNIV NEW MEX	W H MILLER	GSFC	J VENBRUX	NAG 5-2263	5788
49	UNIV NEW MEX	B WHITE	HQ	M LEE	NGT 00-090-052	5807
49	UNIV NEW MEX	O A GUTIERREZ	HQ	M LEE	NGT32-4770	5809
49	CLARKSON UNIV	D A HOPKINS	LERC	J H KANE	NAG 3-1089	5824
49	CLARKSON UNIV	P L MURTHY	LERC	L MINNETYAN	NAG 3-1101	5825
49	CORNELL UNIV	R F LAWRENCE	LERC	M E THOMPSON	NAG 3-1210	5942
49	LA GUARDIA COMMNTY C	B WHITE	HQ	R MCLEOD	NGT 00-090-053	6033
49	POLY INST OF NY	R G SEASHOLTZ	LERC	M V OTUGEN	NAG 3-1301	6049
49	RENSSELAER POLY INST	R W WILL	LARC	A C SANDERSON	NAG 1-1413	6058
49	RENSSELAER POLY INST	R F LAWRENCE	LARC	N BURNETT	NAG 3-544	6062
49	RENSSELAER POLY INST	J B MCQUILLEN	LERC	R T LAHEY	NAG 3-1400	6066
49	RENSSELAER POLY INST	M D MONTEMERLO	HQ	G N SARIDIS	NAGW 1333	6072
49	RENSSELAER POLY INST	R J HAYDUK	HQ	A DESROCHERS	NGT 00-010-000	6082
49	ROCHESTER INST TECH	J A HEMMINGER	LERC	A OGUT	NAG 3-1153	6100
49	ST U OF NY-BUFFALO	E J PRIOR	LARC	V SHALIN	NGT 00-050-992	6150
49	ST U NY-STONY BROOK	A KURKOV	LERC	H S DHADWALL	NAG 3-1526	6154
49	SYRACUSE UNIV	S WANDER	HQ	E F SPINA	NAGW 3713	6207
49	FAYETTEVILLE ST U	B WHITE	HQ	L EDWARDS	NGT 00-090-040	6253
49	NC ST U.-RALEIGH	F H FARMER	LARC	D F MCALLISTER	NAG 1-696	6276
49	NC ST U.-RALEIGH	S M WANDER	HQ	F R DEJARNETTE	NAGW 1331	6298
49	SHAW UNIV	B WHITE	HQ	M CLAYTON	NGT 00-090-041	6334
49	CASE WESTERN RES U	R F LAWRENCE	LERC	M E BOULDING	NAG 3-406	6365
49	CASE WESTERN RES U	D A HOPKINS	ARC	D T DAVY	NAG 3-1027	6375
49	CASE WESTERN RES U	J A SALZMAN	LERC	J S T'EN	NAG 3-1046	6376
49	CASE WESTERN RES U	G R HALFORD	LERC	S S MANSON	NAG 3-1303	6389
49	CASE WESTERN RES U	W A WONG	LERC	M L ADAMS	NAG 3-1362	6392
49	CASE WESTERN RES U	G R HALFORD	LERC	S S MANSON	NAG 3-1363	6393
49	CASE WESTERN RES U	R L THOMPSON	LERC	S OSTRACH	NAS 3-25973	6405
49	CASE WESTERN RES U	A S MCGEE	HQ	J M PRAHL	NGT36-27011	6475
49	CLEVELAND ST U	R C TEW	LERC	M B IBRAHIM	NAG 3-955	6481
49	CLEVELAND ST U	R C TEW	LERC	M B IBRAHIM	NAG 3-971	6482
49	CLEVELAND ST U	G C MADZSAR	LERC	P M FLANAGAN	NAG 3-1151	6485
49	CLEVELAND ST U	F C OWENS	HQ	B GHORASHI	NGT 00-070-148	6532
49	CUYAHOGA COMMUNITY C	R F LAWRENCE	LERC	L NIRO	NAG 3-313	6535
49	OHIO ST U	D S FOX	LERC	J D CAWLEY	NAG 3-755	6562
49	OHIO ST U	C A STEARNS	LERC	A K DOMINEK	NAG 3-1108	6571
49	OHIO UNIV	R M HUESCHEN	LARC	F VAN GRAAS	NAG 1-1423	6633
49	OHIO UNIV	A P BUKLEY	MSFC	R D IRWIN	NAG 8-217	6636
49	OHIO UNIV	A P BUKLEY	MSFC	R D IRWIN	NAG 8-242	6637
49	UNIV AKRON	M P PROCTOR	LERC	M J BRAUN	NAG 3-675	6650
49	UNIV AKRON	C F LORENZO	LERC	T T HARTLEY	NAG 3-1491	6673
49	UNIV CINCINNATI	S C HARTMAN	HQ	L M GALES	NAGW 1407	6708
49	UNIV CINCINNATI	J F ZAKRAJSEK	LERC	P DHAWAN	NCC 3-308	6720
49	UNIV CINCINNATI	F C OWENS	HQ	K N GHIA	NGT 00-050-416	6721
49	UNIV DAYTON	W D MORRIS	LARC	C E EBELING	NAG 1-1327	6728
49	UNIV TOLEDO	P L MURTHY	LERC	S K MITAL	NAG 3-1264	6747
49	UNIV TOLEDO	A T CHAI	LERC	K J DEWITT	NCC 3-34	6764
49	OREGON ST U	F C OWENS	HQ	A C KLEIN	NGT 00-050-829	6853
49	CARNEGIE-MELLON UNIV	D A HOPKINS	LERC	S SAIGAL	NAG 3-1487	6876
49	CARNEGIE-MELLON UNIV	M D MONTEMERLO	HQ	T KANADE	NAGW 1175	6880
49	CARNEGIE-MELLON UNIV	D LAVERY	HQ	R WHITTAKER	NAGW 2998	6881
49	CARNEGIE-MELLON UNIV	J K ALEXANDER	HQ	B MOREL	NGT 00-050-995	6896
49	LINCOLN UNIV -PA.	Y B FREEMAN	HQ	W WILLIAMS	NGT 00-090-020	6930
49	PA ST U.-UNIV. PARK	R S JANKOVSKY	LERC	L L PAULEY	NAG 3-1309	6973

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49	PA ST U.-UNIV. PARK	K W GROSS	MSFC	D A SANTARICCA	NAG 8-160	7007
49	PA ST U.-UNIV. PARK	K W GROSS	MSFC	K K KUO	NAG 8-174	7008
49	PA ST U.-UNIV. PARK	E E VANLANDINGHAM	HQ	C L MERKLE	NAGW 1356	7021
49	PA ST U.-UNIV. PARK	G A WILHOLD	MSFC	C C MERKLE	NAS 8-38861	7050
49	UNIV PITTSBURGH	D E BREWE	LERC	M M KHONSARI	NAG 3-973	7104
49	UNIV RHODE ISLAND	L C MARTIN	LERC	O J GREGORY	NAG 3-1428	7193
49	CLEMSON UNIV-CLEMSON	F C OWENS	HQ	T D TAYLOR	NGT 00-050-548	7239
49	MEMPHIS ST U	A S CHOW	MSFC	J D MO	NAG 8-211	7281
49	TENNESSEE ST U	M H HIRSCHBERG	LERC	C ONWVBIXO	NAG 3-1479	7288
49	TENNESSEE TECH U	R JUDAY	JSC	P K RAJAN	NAG 9-614	7295
49	VANDERBILT UNIV	G C HORNER	LARC	E GARCIA	NAG 1-1484	7331
49	PRAIRIE VIEW A&M U	M DIOQU	JSC	T N FOGARTY	NAG 9-659	7395
49	RICE UNIV	S ASKEW	JSC	D H JOHNSON	NAG 9-601	7417
49	RICE UNIV	S GOLDSTEIN	JSC	I D WALKER	NGT 00-070-251	7448
49	SOUTHERN METHODIST U	S GOLDSTEIN	JSC	J H DULA	NGT 00-050-536	7456
49	TEXAS A&M UNIV	R M HUESCHEN	LARC	J H PAINTER	NAG 1-1066	7464
49	TEXAS A&M UNIV	W K BELVIN	LARC	A KURDILA	NAG 1-1326	7468
49	TEXAS A&M UNIV	S M STEVENSON	LERC	A G PARLES	NAG 3-1235	7475
49	TEXAS A&M UNIV	S M STEVENSON	LERC	W E BOLCH	NAG 3-1326	7478
49	TEXAS A&M UNIV	J CHITWOOD	GSFC	F LITTLE	NAG 5-2221	7493
49	TEXAS A&M UNIV	J W SUNKEL	JSC	A G CARLOS	NAG 9-491	7502
49	TEXAS A&M UNIV	R TAYLOR	LARC	S R VADELI	NAS 1-19373	7531
49	TEXAS A&M UNIV	F C OWENS	HQ	A PARLOS	NGT 00-050-733	7544
49	TEXAS A&M UNIV	F C OWENS	HQ	C S LESSARD	NGT 00-070-108	7547
49	TEXAS A&M UNIV	F C OWENS	HQ	A G PARLOS	NGT 00-070-185	7548
49	TEXAS A&M UNIV	S GOLDSTEIN	JSC	F R BEST	NGT 00-070-248	7550
49	TEXAS A&M UNIV	A S MCGEE	HQ	W A HYMAN	NGT44-1800	7560
49	TEXAS A&M UNIV-SYSTM	S M STEVENSON	LERC	K L PEDDICORD	NAG 3-944	7564
49	UNIV HOUSTON	S H GOLDSTEIN	JSC	E E DEAL	NAG 9-558	7603
49	UNIV HOUSTON	J JOHNSON	JSC	F MISTREE	NAG 9-616	7611
49	UNIV HOUSTON	A S MCGEE	HQ	R B BANNEROT	NGT44-5803	7635
49	U TX-PAN AMERICAN	B WHITE	HQ	W SHOCKLEY	NGT 00-090-043	7651
49	U TX-ARLINGTON	S WANDER	HQ	D R WILSON	NAGW 3714	7682
49	U TX-AUSTIN	F F SIMON	LERC	M E CRAWFORD	NAG 3-864	7698
49	U TX-AUSTIN	G K KLUTE	JSC	M G PANDY	NAG 9-671	7732
49	U TX-AUSTIN	R J HAYDUK	HQ	G F CAREY	NGT 00-070-111	7799
49	U TEXAS-SAN ANTONIO	B WHITE	HQ	M BERRIOZABAL	NAGW 3573	7849
49	U TEXAS-SAN ANTONIO	B WHITE	HQ	L VALERDE	NGT 00-090-047	7851
49	HAMPTON UNIV	R L YANG	LARC	D D VENABLE	NCC 1-166	7980
49	HAMPTON UNIV	A S MCGEE	HQ	J W SPENCER	NGT47-20800	7981
49	NORFOLK ST U	J E GARDNER	LARC	J A JACOBS	NAG 1-1432	7984
49	NORFOLK ST U	S STOVALL-ALEXANDER	HQ	J S SHAY	NGT 00-090-160	7990
49	OLD DOMINION UNIV	N J GROOM	LARC	C P BRITCHER	NAG 1-1056	8002
49	OLD DOMINION UNIV	A S MCGEE	HQ	S N TIWARI	NGT47-3029	8059
49	UNIV VIRGINIA	A R WIETING	LARC	E A THORNTON	NAG 1-1013	8067
49	UNIV VIRGINIA	J R REAGAN	LERC	Y Y HAIME	NAG 3-1356	8083
49	UNIV VIRGINIA	S L VENNARI	HQ	A K NOOR	NCCW 11	8122
49	UNIV VIRGINIA	F C OWENS	HQ	J J DORNING	NGT 00-050-793	8135
49	UNIV VIRGINIA	J ALEXANDER	HQ	R BARAGIOLA	NGT 00-050-905	8140
49	UNIV VIRGINIA	J ALEXANDER	HQ	R A BARAGIOLA	NGT 00-050-906	8141
49	UNIV VIRGINIA	E J PRIOR	LARC	E A THORNTON	NGT 00-051-114	8149
49	UNIV VIRGINIA	F C OWENS	HQ	W D PILKEY	NGT 00-070-127	8152
49	VA PLOY INST & ST U	R S ROGOWSKI	LARC	R O CLAUS	NAG 1-1292	8194
49	VA PLOY INST & ST U	W J STROUD	LARC	E NIKOLAIDIS	NAG 1-1458	8207
49	VA PLOY INST & ST U	W K BELVIN	LARC	D J INMAN	NAG 1-1462	8208
49	VA PLOY INST & ST U	S B WILSON III	ARC	J R MAHAN	NAG 2-664	8214
49	WEST VIRGINIA UNIV	D BAYON	HQ	W REEVES	NAGW 2810	8457
49	UNIV WISC-MADISON	B M CARPENTER	HQ	S KOU	NAGW 3004	8577
49	UNIV TURABO	R L YANG	LARC	W R DAWES	NAG 1-1347	8666
51	ALA A&M UNIV	J L RANDALL	MSFC	D ILA	NAG 8-115	1005



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51	ALA A&M UNIV	H MATSOS	MSFC	J JOHNSON	NAG 8-198	1009
51	ALA A&M UNIV	D S NACHTWEY	JSC	P KALE	NAG 9-246	1018
51	ALA A&M UNIV	R C RUFF	MSFC	R B LAL	NAS 8-36634	1019
51	ALA A&M UNIV	R D MACELROY	ARC	M TADROS	NCC 2-501	1020
51	UNIV ALA-BIRMINGHAM	A VILLAMIL	HQ	C E BUGG	NAGW 813	1070
51	UNIV ALA-BIRMINGHAM	B HERREN	MSFC	C E BUGG	NAS 8-36611	1073
51	UNIV ALA-HUNTSVILLE	F SIX	MSFC	J VAN ALSTINE	NAG 8-234	1101
51	UNIV ALA-HUNTSVILLE	B ANDERSON	MSFC	J WRIGHT	NAG 8-297	1104
51	UNIV ALA-HUNTSVILLE	M L PUSEY	MSFC	F ROSENBERGER	NAG 8-868	1114
51	UNIV ALA-HUNTSVILLE	T W HALSTEAD	HQ	M LEWIS	NAGW 2739	1133
51	UNIV ALA-UNIV	L WANG	JSC	R E SMITH	NAG 9-625	1194
51	ARIZONA ST U	J D RUMMEL	HQ	R E BLANKENSHIP	NAGW 1395	1281
51	UNIV OF ARIZONA	C M WINGET	ARC	M E TISCHLER	NAG 2-384	1329
51	UNIV OF ARIZONA	E M HOLTON	ARC	E J HENRIKSEN	NAG 2-782	1335
51	UNIV OF ARIZONA	C F SAMS	JSC	S O KESSLER	NAG 9-442	1385
51	UNIV OF ARIZONA	S R GONDA	JSC	D W SAMMONS	NAG 9-537	1388
51	UNIV OF ARIZONA	T W HALSTEAD	HQ	M E TISCHLER	NAGW 3197	1475
51	UNIV OF ARIZONA	S R GONDA	JSC	D W SAMMONS	NAS 9-18433	1511
51	UNIV OF ARIZONA	F C OWENS	HQ	M L LEVINE	NGT 00-050-270	1527
51	SAN DIEGO STATE U	T HALSTEAD	HQ	D RAYLE	NAGW 1849	1773
51	SAN DIEGO STATE U	W M KNOTT	KSC	D L RAYLE	NAG10-87	1777
51	SAN JOSE ST U	W E HINDS	ARC	L S YENGOYAN	NAG 2-713	1799
51	SAN JOSE ST U	M L CORCORAN	ARC	R A FOX	NCC 2-449	1835
51	SAN JOSE ST U	C M WINGET	ARC	D C HOLLEY	NCC 2-593	1839
51	SAN JOSE ST U	M L CORCORAN	ARC	R A FOX	NCC 2-723	1844
51	SAN JOSE ST U	C M WINGET	ARC	D C HOLLEY	NCC 2-779	1846
51	SAN JOSE ST U	S M HING	ARC	D C HOLLEY	NCC 2-822	1848
51	SANTA CLARA UNIV	J D RUMMEL	HQ	H P KLEIN	NAGW 2378	1851
51	SANTA CLARA UNIV	L L JAHNKE	ARC	H P KLEIN	NCA 2-527	1853
51	STANFORD UNIV	M M AVERNER	HQ	P VITOUSEK	NAGW 1068	1896
51	STANFORD UNIV	M D ROSS	ARC	M W FELDMAN	NCC 2-778	1986
51	STANFORD UNIV	M MOORE	ARC	P VITOUSEK	NGT 00-050-895	2007
51	UNIV CALIF-BERKELEY	E M HOLTON	ARC	F H WILT	NAG 2-572	2044
51	UNIV CALIF-BERKELEY	S W FOGLEMAN	HQ	B B BUCHANAN	NAGW 427	2094
51	UNIV CALIF-BERKELEY	T W HALSTEAD	HQ	L FELDMAN	NAGW 3605	2144
51	UNIV CALIF-DAVIS	J P CONNOLLY	ARC	C A FULLER	NAG 2-587	2218
51	UNIV CALIF-DAVIS	C E WADE	ARC	J M HOROWITZ	NAG 2-788	2222
51	UNIV CALIF-DAVIS	J VERNIKOS	ARC	C A FULLER	NAG 2-801	2224
51	UNIV CALIF-DAVIS	C M WINGET	ARC	J VERNIKOS	NAG 2-840	2225
51	UNIV CALIF-DAVIS	D MORRISON	JSC	L WILEY	NAG 9-605	2233
51	UNIV CALIF-DAVIS	T W HALSTEAD	HQ	J M HOROWITZ	NAGW 1458	2237
51	UNIV CALIF-DAVIS	T W HALSTEAD	HQ	C A FULLER	NAGW 2195	2238
51	UNIV CALIF-DAVIS	F C OWENS	HQ	C A FULLER	NGT 00-050-458	2275
51	UNIV CALIF-IRVINE	M D ROSS	ARC	R H BLANKS	NAG 2-399	2283
51	UNIV CALIF-IRVINE	A D MANDEL	ARC	K M BALDWIN	NAG 2-555	2284
51	UNIV CALIF-IRVINE	J D RUMMEL	HQ	T K LANYI	NAGW 212	2294
51	UNIV CAL-LOS ANGELES	C M WINGET	ARC	V R EDGERTON	NAG 2-717	2327
51	UNIV CAL-LOS ANGELES	C F SAMS	JSC	C E KASPER	NAG 9-323	2368
51	UNIV CAL-LOS ANGELES	A PLAZA	JSC	R EGGERTON	NAS 9-18773	2437
51	UNIV CAL-LOS ANGELES	J P CONNOLLY	ARC	V R EDGERTON	NCC 2-535	2444
51	UNIV CAL-RIVERSIDE	R SNYDER	MSFC	A MCPHERSON	NAG 8-804	2463
51	UNIV CAL-SAN DIEGO	C M WINGET	ARC	J B WEST	NAG 2-601	2478
51	UNIV CAL-SAN DIEGO	J P CONNOLLY	ARC	S FOWLER	NAG 2-653	2479
51	UNIV CAL-SAN DIEGO	C M WINGET	ARC	S BODINE-FOWLER	NAG 2-714	2481
51	UNIV CAL-SAN DIEGO	R J WHITE	HQ	J B WEST	NAGW 897	2522
51	UNIV CAL-SAN DIEGO	J D RUMMEL	HQ	G ARRHENIUS	NAGW 1031	2523
51	U CAL-SAN FRANCISCO	J P CONNOLLY	ARC	C E CANN	NAG 2-770	2602
51	U CAL-SAN FRANCISCO	C E WADE	ARC	W F GANONG	NAG 2-779	2603
51	U CAL-SAN FRANCISCO	T W HALSTEAD	HQ	M H FULFORD	NAGW 1244	2607
51	U CAL-SAN FRANCISCO	T W HALSTEAD	HQ	W F GANONG	NAGW 1611	2608

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51	U CAL-SAN FRANCISCO	V ELLERBE	JSC	C CANN	NAS 9-18769	2610
51	U CAL-SAN FRANCISCO	S B ARNAUD	ARC	E M HOLTON	NCC 2-589	2615
51	U CAL-SAN FRANCISCO	E M HOLTON	ARC	C E CANN	NCC 2-597	2616
51	COLORADO ST U	V H STOKLOSA	HQ	G R COWLTER	NAGW 2197	2770
51	COLORADO ST U	R D MACELROY	ARC	W Z SADEH	NCC 2-728	2777
51	UNIV COL-Boulder	M KLISS	ARC	M W LUTTGES	NCA 2-713	3001
51	U OF CONN HLTH CTR	T W HALSTEAD	HQ	D W ROWE	NAGW 3332	3099
51	YALE UNIV	R D MACELROY	ARC	A W GALSTON	NCC 2-726	3129
51	UNIV DELAWARE	M M AVERNER	HQ	V KLENAS	NAGW 374	3149
51	UNIV DELAWARE	J K ALEXANDER	HQ	A M LENHOFF	NAGW 2798	3155
51	FLORIDA INST OF TECH	B MARTIN	KSC	R C WEIGEL	NGT 00-050-967	3290
51	UNIV FLORIDA	W M KNOTT	KSC	D J CANTLIFFE	NAG10-100	3402
51	UNIV FLORIDA	C M WINGET	ARC	T WRONSKI	NCC 2-825	3407
51	UNIV MIAMI	W C PATZERT	HQ	H C GRABER	NAGW 2672	3432
51	UNIV SOUTH FLORIDA	G SPAULDING	JSC	J L BECKER	NAG 9-648	3450
51	EMORY UNIV	G K SCHMIDT	ARC	V POPOVIC	NAS 2-10527	3476
51	GEORGIA INST OF TECH	D K RUSSELL	HQ	P GIRARD	NGT 00-070-363	3567
51	GEORGIA ST U	P X CALLAHAN	ARC	D M RUMBAUGH	NAG 2-438	3579
51	NORTHWESTERN UNIV	T W HALSTEAD	HQ	R S DECKER	NAGW 3615	3758
51	UNIV CHICAGO	M L CORCORAN	ARC	J M GOLDBERG	NAG 2-785	3783
51	UNIV ILLINOIS URBANA	S M HING	ARC	P C HARRISON	NAG 2-863	3892
51	UNIV ILLINOIS URBANA	J D RUMMEL	HQ	C R WOESE	NAGW 2554	3929
51	INDIANA ST U	J ALEXANDER	HQ	D PRENTICE	NGT 00-050-911	3968
51	IND U-PURDUE-INDAPLS	C M WINGET	ARC	W E ROBERTS	NAG 2-756	3969
51	IND U-PURDUE-INDAPLS	E M HOLTON	ARC	W E ROBERTS	NCC 2-594	3971
51	INDIANA U-BLOOMINGTN	T W HALSTEAD	HQ	G M MALACINSKI	NAGW 1548	3978
51	PURDUE UNIV	W M KNOTT	KSC	G E MILES	NAG10-90	4038
51	PURDUE UNIV	W M KNOTT	KSC	C A MITCHELL	NAG10-93	4039
51	PURDUE UNIV	W M KNOTT	KSC	M OKOS	NAG10-112	4040
51	KANSAS ST U	F SIX	MSFC	B S SPOONER	NAG 8-246	4189
51	KANSAS ST U	R J WHITE	HQ	B S SPOONER	NAGW 2328	4192
51	UNIV LOUISVILLE	R E GRINDELAND	ARC	X J MUSACCHIA	NAG 2-386	4250
51	UNIV LOUISVILLE	R BALLARD	ARC	G SONNENFELD	NAG 2-624	4251
51	UNIV LOUISVILLE	J P CONNOLLY	ARC	G SONNENFELD	NAG 2-707	4252
51	UNIV LOUISVILLE	G TAYLOR	JSC	G SONNENFELD	NAG 9-485	4253
51	UNIV LOUISVILLE	T HALSTEAD	HQ	G SONNENFELD	NAGW 70	4255
51	UNIV LOUISVILLE	R W BALLARD	ARC	G SONNENFELD	NCA 2-687	4257
51	LA ST U-BATON ROUGE	T W HALSTEAD	HQ	M MUSGRAVE	NAGW 3759	4276
51	LA ST U-BATON ROUGE	W KNOTT	JSC	M E MUSGRAVE	NAG10-75	4277
51	TULANE UNIV	F C OWENS	HQ	A L WEIDEN	NGT 00-050-550	4300
51	UNIV SOUTHWESTERN LA	T W HALSTEAD	HQ	K H HASENSTEIN	NAGW 3565	4307
51	BOWDOIN COLLEGE	T W HALSTEAD	HQ	C R PHILLIPS	NAGW 1719	4311
51	JOHNS HOPKINS UNIV	G SPAULDING	JSC	W M SALTZMAN	NAG 9-654	4371
51	JOHNS HOPKINS UNIV	V S ELLERBE	JSC	J V BRADY	NAS 9-18758	4419
51	UNIV MD-COLLEGE PARK	M L CORCORAN	ARC	A N POPPER	NAG 2-787	4458
51	UNIV MD-COLLEGE PARK	J K ALEXANDER	HQ	J A REGGIA	NAGW 2805	4562
51	BOSTON UNIV	F C OWENS	HQ	S GROSSBERG	NGT 00-050-497	4665
51	HARVARD UNIV	P X CALLAHAN	ARC	S F VATNER	NAG 2-451	4676
51	HARVARD UNIV	E M HOLTON	ARC	A GOLDBERG	NAG 2-704	4677
51	HARVARD UNIV	R D MACELROY	ARC	R MITCHELL	NAG 2-843	4680
51	HARVARD UNIV	R D MACELROY	ARC	R MITCHELL	NCC 2-628	4721
51	MASS INST OF TECH	M M COHEN	ARC	L R YOUNG	NAG 2-445	4770
51	MASS INST OF TECH	D L PIERSON	JSC	A L DEMAINE	NAG 9-602	4859
51	MASS INST OF TECH	G SPAULDING	JSC	L E FREED	NAG 9-655	4860
51	MASS INST OF TECH	M BALTUCK	HQ	L H ROYDEN	NAGW 1951	4883
51	MASS INST OF TECH	J D RUMMEL	HQ	A RICH	NAGW 2341	4895
51	UNIV MASS-AMHERST	J D RUMMELT	HQ	L MARGOLIS	NAGW 1989	5017
51	WILLIAMS COLLEGE	W M KNOTT	KSC	R D SLO CUM	NAG10-88	5043
51	MICHIGAN ST U	T HALSTEAD	HQ	K L POFF	NAGW 882	5074
51	MICHIGAN TECH U	M MOORE	ARC	W C KERFOOT	NGT 00-051-024	5099

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51	U MICHIGAN-ANN ARBOR	G SPAULDING	HQ	B PALSSON	NAG 9-652	5158
51	U MICHIGAN-ANN ARBOR	M M AVERNER	HQ	B O PALSSON	NAGW 2608	5192
51	BEMIDJI ST U	C YANG	JSC	A L LINDGREN	NAG 9-623	5264
51	UNIV MISS-MED CENTER	M L CORCORAN	ARC	J D DICKMAN	NAG 2-786	5367
51	SAINT LOUIS UNIV	E M HOLTON	ARC	N C PARTRIDGE	NAG 2-454	5375
51	SAINT LOUIS UNIV	F C OWENS	HQ	N C PARTRIDGE	NGT 00-050-673	5376
51	WASHINGTON UNIV	G SPAULDING	GSFC	D W SCHARP	NAG 9-653	5411
51	WASHINGTON UNIV	J K ALEXANDER	HQ	B G PICKARD	NAGW 1728	5416
51	WASHINGTON UNIV	T W HALSTEAD	HQ	B G PICKARD	NAGW 3046	5433
51	U NEBRASKA-LINCOLN	T W HALSTEAD	HQ	T A JONES	NAGW 1275	5488
51	UNIV NEBRASKA-OMAHA	F SIX	MSFC	J RASLER	NAG 8-221	5499
51	UNIV NEW HAMP-DURHAM	M M AVERNER	HQ	B MOORE	NAGW 714	5565
51	BROOKLYN COLLEGE	T W HALSTEAD	HQ	M P SCHREIBMAN	NAGW 1704	5810
51	CLARKSON UNIV	W ORAN	HQ	W R WILCOX	NAGW 976	5831
51	CORNELL UNIV	T W HALSTEAD	HQ	R WAYNE	NAGW 3341	5998
51	CORNELL UNIV	R WHITE	HQ	R W ZOBEL	NGT 00-051-075	6024
51	MT SINAI S-MED-CUNY	C M WINGET	ARC	B COHEN	NAG 2-706	6035
51	MT SINAI S-MED-CUNY	D L TOMKO	ARC	B COHEN	NAG 2-804	6036
51	NEW YORK UNIV	M L CORCORAN	ARC	R R LLINAS	NAG 2-662	6039
51	NEW YORK UNIV	R D MACELROY	ARC	T VOLK	NCC 2-608	6045
51	ST U NY-BINGHAMTON	R L SAUER	JSC	G E JANAUER	NAG 9-307	6131
51	ST U OF NY-BUFFALO	T W HALSTEAD	HQ	M A BISSON	NAGW 3630	6147
51	ST U NY-STONY BROOK	W M KNOT	KSC	A D KRIKORIAN	NAG10-70	6181
51	ST U NY-STONY BROOK	W M KNOTT	KSC	M A BISSON	NAG10-99	6182
51	EAST CAROLINA UNIV	C M WINGET	ARC	H W BURDEN	NCC 2-810	6251
51	UNIV NC-CHAPEL HILL	S B ARNAUD	ARC	R M DILLAMAN	NAG 2-391	6337
51	UNIV NC-CHAPEL HILL	T HALSTEAD	HQ	T K SOOTT	NAGW 1842	6342
51	WAKE FOREST UNIV	G C JAHNS	ARC	P M HUTCHINS	NAS 2-10523	6352
51	CASE WESTERN RES U	D L HARM	JSC	R J LEIGH	NAG 9-571	6403
51	KENYON COLLEGE	T W HALSTEAD	HQ	K L EDWARDS	NAGW 2143	6552
51	OHIO ST U	T W HALSTEAD	HQ	F D FISK	NAGW 3594	6609
51	OHIO ST U	T W HALSTEAD	HQ	M L EVANS	NAGW 3730	6612
51	OHIO ST U	W M KNOTT	KSC	M L EVANS	NAG10-84	6613
51	OHIO ST U	W M KNOTT	KSC	F D SACK	NAG10-85	6614
51	OHIO ST U	F C OWENS	HQ	F D SACK	NGT 00-050-668	6626
51	OREGON HLTH SCI UNIV	C E WADE	ARC	M V DANILCHIK	NAG 2-803	6804
51	OREGON ST U	D L PETERSON	ARC	D MYROLD	NAG 2-719	6809
51	OREGON ST U	T W HALSTEAD	HQ	T LOMAX	NAGW 3716	6834
51	OREGON ST U	W M KNOTT	KSC	T L LOMAX	NAG10-81	6837
51	OREGON ST U	F C OWENS	HQ	T LOMAX	NGT 00-050-321	6849
51	REED COLLEGE	K A SOUZA	ARC	S D BLACK	NCA 2-691	6857
51	PA ST U-HERSHEY MED.	L KEIL	ARC	W B SEVERS	NCC 2-127	6932
51	PA ST U.-UNIV. PARK	R C DARTY	MSFC	W C HUMER	NAG 8-953	7017
51	PA ST U.-UNIV. PARK	T W HALSTEAD	HQ	D J COSGROVE	NAGW 3333	7039
51	PA ST U.-UNIV. PARK	T W HALSTEAD	HQ	J A FRANGOS	NAGW 3358	7040
51	PA ST U.-UNIV. PARK	C M WINGET	ARC	W C HYMER	NCC 2-370	7055
51	UNIV PITTSBURGH	J VILLARREAL	JSC	T H MONK	NAS 9-18404	7122
51	UNIV RHODE ISLAND	J H STOKLOSA	HQ	A CRUICKSHANK	NAGW 3645	7204
51	FISK UNIV	R D MACELROY	ARC	M GUNASEKARAN	NCC 2-606	7277
51	UNIV TENN-KNOXVILLE	T W HALSTEAD	HQ	B V CONGER	NAGW 3141	7316
51	UNIV TENN-MEMPHIS	W E HINDS	ARC	A T ICHIKI	NAG 2-494	7329
51	BAYLOR COL-MEDICINE	A D MANDEL	ARC	C P ALFREY	NAG 2-500	7360
51	BAYLOR COL-MEDICINE	J K ALEXANDER	HQ	J I MULHOLLAND	NAGW 2862	7363
51	RICE UNIV	T W HALSTEAD	HQ	J BRAAM	NAGW 3139	7428
51	TEXAS A&M UNIV	D HENNINGER	JSC	B D ETTER	NAG 9-669	7516
51	TEXAS A&M UNIV	F C OWENS	HQ	E RYKIEL	NGT 00-050-690	7543
51	UNIV HOUSTON	W A ORAN	HQ	C W CHU	NAGW 977	7619
51	UNIV HOUSTON	J D RUMMEL	HQ	G E FOX	NAGW 2108	7620
51	UNIV HOUSTON	F C OWENS	HQ	G E FOX	NGT 00-050-619	7628
51	U TX MED-GALVESTON	N G DAUNTON	ARC	A A PERACHIO	NAG 2-26	7636

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51	U TX MED-GALVESTON	N G DAUNTON	ARC	J P GALLAGHER	NAG 2-260	7637
51	U TX MED-GALVESTON	J P CONNOLLY	ARC	M J CORREIA	NAG 2-446	7638
51	U TX MED-GALVESTON	M L CORCORAN	ARC	S L COCHRAN	NAG 2-780	7639
51	U TX MED-GALVESTON	H LANE	JSC	R WOLFE	NAS 9-18967	7641
51	U TX-CTR-SAN ANTONIO	C M WINGET	ARC	M L WIDERHOLD	NAG 2-730	7645
51	U TX-CTR-SAN ANTONIO	T W HALSTEAD	HQ	M L WIEDERHOLD	NAGW 2078	7647
51	UNIV TX-CTR-DALLAS	A PLAZA	JSC	C G BLOMQUIST	NAS 9-18762	7662
51	U-TX-CTR-HOUSTON	C M WINGET	ARC	P J DUKE	NCC 2-423	7669
51	U TX-AUSTIN	G SPAULDING	JSC	R M BROWN	NAG 9-397	7718
51	U TX-AUSTIN	T W HALSTEAD	HQ	S J ROUX	NAGW 1519	7737
51	U TEXAS-SAN ANTONIO	R A GRYMES	ARC	A O MARTINEZ	NAG 2-819	7846
51	UNIV UTAH	S B ARNAUD	ARC	W S JEE	NAG 2-435	7865
51	UTAH ST U	R D MACELROY	ARC	F B SALISBURY	NCC 2-139	7901
51	U VERMONT & ST AGR C	T W HALSTEAD	HQ	P M LINTILHAC	NAGW 3604	7911
51	ESTRN VA MED SCHL	C M WINGET	ARC	D B SPANGENBERG	NAG 2-343	7946
51	ESTRN VA MED SCHL	C M WINGET	ARC	D B SPANGENBERG	NAG 2-767	7947
51	GEORGE MASON UNIV	J D RUMMEL	HQ	M HOLLANDER	NAGW 1943	7958
51	GEORGE MASON UNIV	S CHANG	ARC	H MOROWITZ	NCA 2-487	7960
51	OLD DOMINION UNIV	W M KNOTT	KSC	F P DAY	NAG10-110	8026
51	UNIV VIRGINIA	J D RUMMEL	HQ	R H KRETSINGER	NAGW 1233	8101
51	UNIV VIRGINIA	J H STOKLOSA	HQ	D HUDSON	NAGW 2217	8108
51	UNIV VIRGINIA	J H STOKLOSA	HQ	D J HUDSON	NAGW 3157	8115
51	UNIV VIRGINIA	M K KAISER	ARC	D R PROFFITT	NCA 2-468	8118
51	VA COMMONWEALTH UNIV	S M FURTNEY	JSC	D L ECKBERG	NAG 9-412	8264
51	UNIV WASHINGTON	C F SAMS	JSC	P VERDUGO	NAG 9-604	8314
51	UNIV WASHINGTON	T W HALSTEAD	HQ	R E CLELAND	NAGW 3755	8372
51	UNIV WASHINGTON	W M KNOTT	KSC	R E CLELAND	NAG10-77	8373
51	WASHINGTON ST U	T W HALSTEAD	HQ	N G LEWIS	NAGW 3672	8437
51	MARQUETTE UNIV	S B ARNAUD	ARC	R H FITTS	NAG 2-212	8475
51	MEDICAL C-WISCONSIN	A D MANDEL	ARC	D A RILEY	NAG 2-552	8484
51	MEDICAL C-WISCONSIN	C M WINGET	ARC	D A RILEY	NAG 2-633	8485
51	U WISC-EAU CLAIRE	C P MCKAY	ARC	P J THOMAS	NCA 2-577	8486
51	UNIV WISC-MADISON	E M HOLTON	ARC	E SCHULTZ	NAG 2-671	8494
51	UNIV WISC-MADISON	R BALLARD	ARC	A C VAILAS	NAG 2-769	8495
51	UNIV WISC-MADISON	V CEVENINI	HQ	J G BOLLINGER	NAGW 975	8551
51	UNIV WISC-MADISON	W L HOWER	ARC	L COE	NAS 2-12939	8589
51	UNIV WISC-MADISON	R D MACELROY	ARC	T W TIBBITTS	NCC 2-301	8601
51	UNIV WISC-MADISON	E M HOLTON	ARC	A C VAILAS	NCC 2-619	8603
51	UNIV WISC-MILWAUKEE	S H GOLDSTEIN	JSC	L O SCHULZ	NAG 9-556	8621
51	UNIV WISC-MILWAUKEE	G SPAULDING	JSC	P I LELKES	NAG 9-651	8622
51	UNIV WISC-MILWAUKEE	J D RUMMEL	HQ	K NEALSON	NAGW 3270	8623
51	UNIV PUERTO RICO	F SIX	MSFC	A F ANDINO	NAG 8-260	8644
54	ALA A&M UNIV	R D MACELROY	ARC	C BROOKS	NCC 2-607	1021
54	CALIF INST OF TECH	D P BLANCHARD	JSC	D S BURNETT	NAG 9-702	1612
54	CAL ST UNIV-FRESNO	J S SALUTE	ARC	J F PARIS	NAG 2-802	1737
54	STANFORD UNIV	M M AVERNER	HQ	J ROUGHGARDEN	NAGW 2159	1905
54	UNIV CALIF-DAVIS	C M WINGET	ARC	C A FULLER	NAG 2-562	2217
54	UNIV CAL-LOS ANGELES	D BUBENHEIM	ARC	W BERRY	NCA 2-564	2438
54	UNIV CAL-LOS ANGELES	D BUBENHEIM	ARC	W BERRY	NCA 2-806	2442
54	UNIV NORTHERN COL	F SIX	MSFC	C JACKSON	NAG 8-227	3095
54	UNIV CONNECTICUT	M M AVERNER	HQ	S PACALS	NAGW 2088	3106
54	GEORGE WASHINGTON U	P O'NEILL	GSFC	N CHAUHAN	NAG 5-2325	3179
54	HOWARD UNIV	P A MATSON	ARC	B H DAHLIN	NAG 2-585	3198
54	HOWARD UNIV	J D RUMMEL	HQ	D W SCHWARTMAN	NAGW 2931	3208
54	FLA INTERNATIONAL U	M M AVERNER	HQ	L L RICHARDSON	NAGW 2092	3249
54	FLORIDA ATLANTIC U	L MACDOWELL	KSC	S M LIPKA	NAG10-104	3276
54	FLORIDA INST OF TECH	J ZYSKO	KSC	D T RESIO	NAG10-97	3286
54	FLORIDA ST U	J D RUMMEL	HQ	E I FRIEDMANN	NAGW 1871	3317
54	GEORGIA INST OF TECH	J D RUMMEL	HQ	D E CANFIELD	NAGW 3117	3525
54	UNIV MAINE-ORONO	M M AVERNER	HQ	G M KING	NAGW 1428	4313

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54	CTR ENV/ESTUARNE STY	G A SOFFEN	GSFC	S W SEAGLE	NAG 5-2042	4320
54	MONTANA ST U	J D RUMMEL	HQ	D M WARD	NAGW 2764	5461
54	UNIV NEVADA-RENO	J D RUMMEL	HQ	R A WHARTON	NAGW 1947	5511
54	UNIV NEW HAMP-DURHAM	M M AVERNER	HQ	R HARRISS	NAGW 1726	5570
54	PRINCETON UNIV	M M AVERNER	HQ	S A LEVIN	NAGW 3124	5668
54	NEW YORK UNIV	J D RUMMEL	HQ	M R RAMPINO	NAGW 1697	6042
54	DREXEL UNIV	F ROBERTSON	MSFC	D PERKEY	NAG 8-298	6909
54	PA ST U.-UNIV. PARK	R C DARTY	MSFC	W C HYMER	NAG 8-807	7014
54	UNIV TENN-KNOXVILLE	E B RODGERS	MSFC	D C WHITE	NAS 8-38493	7321
54	LAMAR UNIV	D M HOY	JSC	K LI	NAG 9-696	7383
54	LAMAR UNIV	D M HOY	JSC	K LI	NAG 9-697	7384
54	TEXAS A&M UNIV	D L HENNINGER	JSC	E J RYKIEL	NAG 9-541	7508
54	TEXAS A&M UNIV	-	JSC	L R HOZZNER	NAG 9-642	7514
54	U TX-AUSTIN	J D RUMMEL	HQ	E R PIANKA	NAGW 2815	7754
54	U TX-EL PASO	J S SALUTE	ARC	S A STARKS	NAG 2-670	7827
54	WESTERN WASHINGTON U	F SIX	MSFC	D ENGELATON	NAG 8-213	8444
54	UNIV WISC-MADISON	C C JOHNSON	ARC	C L COE	NAG 2-647	8493
54	UNIV WISC-MADISON	W KNOTT	KSC	H SCHATTEN	NAG10-64	8586
54	UNIV WYOMING	J K ALEXANDER	HQ	W K SMITH	NAGW 2808	8639
54	U PUERTO RICO-MED	A T JOYCE	SSC	J NORAT	NAG13-19	8643
55	UNIV CALIF-BERKELEY	W M KNOTT	KSC	L FELDMAN	NAG10-80	2147
55	UNIV CALIF-DAVIS	J SALUTE	ARC	J GRANETT	NCA 2-804	2265
55	UNIV CALIF-DAVIS	R D MACELROY	ARC	R C HUFFAKER	NCC 2-99	2268
55	UNIV CAL-LOS ANGELES	W M KNOTT	KSC	W L BERRY	NAG10-52	2432
55	UNIV CAL-RIVERSIDE	H ASHKENAS	JPL	O A CHADWICK	NGT 00-070-261	2470
55	COLORADO ST U	D L HENNINGER	JSC	W L LINDSAY	NAG 9-576	2765
55	COLORADO ST U	R WHITE	HQ	R GOTSHALL	NGT 00-051-146	2788
55	UNIV DELAWARE	S GOLDSTEIN	JSC	D L SPARKS	NGT 00-050-871	3163
55	UNIV FLORIDA	W CAMP	KSC	D J CANTLIFFE	NGT 00-050-968	3416
55	UNIV GEORGIA	P GILL	MSFC	W SIMONTON	NAG 8-209	3606
55	LA ST U-BATON ROUGE	B MARTIN	KSC	M E MUSGRAVE	NGT 00-051-097	4282
55	MICHIGAN ST U	F C OWENS	HQ	K L POFF	NGT 00-050-791	5079
55	U MICHIGAN-ANN ARBOR	W M KNOTT	KSC	P KAUFMAN	NAG10-69	5200
55	RUTGERS ST U-N BRNSK	R D MACELROY	ARC	H W JANES	NCA 2-664	5697
55	CORNELL UNIV	J MAZZURCO	ARC	J M DUXBURY	NAG 2-742	5934
55	CORNELL UNIV	W M KNOTT	KSC	R WAYNE	NAG10-71	6001
55	NC ST U.-RALEIGH	R MACELROY	ARC	C D RAPERJR	NCC 2-101	6323
55	OREGON ST U	J ALEXANDER	HQ	R WARING	NGT 00-050-914	6854
55	TEXAS SOUTHERN UNIV	J D ATKINSON JR.	JSC	O A JEJELOWO	NAG 9-712	7577
55	U TX-AUSTIN	R WHITE	HQ	S ROUX	NGT 00-051-065	7795
55	WASHINGTON ST U	W M KNOTT	KSC	N G LEWIS	NAG10-86	8439
55	WEST VIRGINIA UNIV	F C OWENS	HQ	S N DWIVEDI	NGT 00-070-143	8467
55	UNIV WISC-MADISON	R D MACELROY	ARC	TIBBITTS	NAG 2-838	8496
55	UNIV WISC-MADISON	J ALEXANDER	HQ	T TIBBITTS	NGT 00-050-956	8612
56	UNIV ALA-HUNTSVILLE	R L SAUER	JSC	W CRUMP	NAS 9-18403	1158
56	UNIV ALA-HUNTSVILLE	S GOLDSTEIN	KSC	G A DUDLEY	NGT 00-051-121	1173
56	CAL ST UNIV-CHICO	J S SALUTE	ARC	J R BURLEIGH	NCA 2-815	1736
56	UNIV CAL-LOS ANGELES	R E GRINDELAND	ARC	V R EDGERTON	NAG 2-450	2322
56	UNIV CAL-LOS ANGELES	M G BALLIN	ARC	V MANOUSIOUTHAKIS	NAG 2-822	2330
56	UNIV CAL-LOS ANGELES	F C OWENS	HQ	V R EDGERTON	NGT 00-050-562	2450
56	UNIV CAL-LOS ANGELES	M MOORE	ARC	V R EDGERTON	NGT 00-051-175	2456
56	UNIV CAL-SAN DIEGO	A R HARGENS	ARC	B J TUCKER	NAG 2-659	2480
56	UNIV CAL-SAN DIEGO	J B CHARLES	JSC	J B WEST	NAG 9-271	2517
56	UNIV CAL-SAN DIEGO	A R HARGENS	ARC	B J TUCKER	NCC 2-556	2579
56	U CAL-SAN FRANCISCO	C M WINGET	ARC	C CANN	NAG 2-790	2604
56	U CAL-SAN FRANCISCO	V S SCHNEIDER	JSC	H K GENANT	NAG 9-343	2605
56	U CAL-SAN FRANCISCO	V S SCHNEIDER	JSC	H K GENANT	NAG 9-603	2606
56	U CAL-SAN FRANCISCO	P J KIRK	ARC	J J KAMIYA	NCC 2-115	2613
56	U CAL-SAN FRANCISCO	J VERNIKOS	ARC	M F DALLMAN	NCC 2-764	2617
56	COLORADO ST U	D R MORRISON	JSC	J LETT	NAG 9-10	2764

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56	COLORADO ST U	D MORRISON	JSC	J METT	NAG 9-583	2766
56	U COL HLTH SCI CTR	C F SAMS	JSC	R T MEEHAN	NAG 9-612	2789
56	UNIV COL-BOULDER	D GOLDWATER	ARC	M LUTTGES	NCA 2-759	3002
56	UNIV COL-DENVER	C SAMS	JSC	R MEEHAN	NAG 9-384	3077
56	UNIV COL-DENVER	C F SAMS	JSC	R T MEEHAN	NAG 9-550	3078
56	FLORIDA INST OF TECH	B WILLIAMS	KSC	A M DHOPE	NAG10-106	3288
56	UNIV FLORIDA	R J WHITE	HQ	R R GRAMS	NAGW 3570	3399
56	UNIV FLORIDA	A KOLLER	KSC	R R GRAMS	NAG10-41	3401
56	UNIV FLORIDA	F C OWENS	HQ	H DERENDORT	NGT 00-050-734	3412
56	UNIV SOUTH FLORIDA	R BUTTERFIELD	KSC	L T CLARK	NAG10-68	3457
56	MOREHOUSE SCHOOL MED	R BILICA	JSC	W SULLIVAN	NAG 9-547	3585
56	MOREHOUSE SCHOOL MED	C SAMS	JSC	G L SANFORD	NAG 9-644	3586
56	UNIV GEORGIA	A L PLAZA	JSC	S FELDMAN	NAS 9-18757	3609
56	UNIV GEORGIA	S GOLDSTIEN	JSC	S FELDMAN	NGT 00-050-739	3611
56	NORTHWESTERN UNIV	C E WADE	ARC	F W TUREK	NAG 2-774	3735
56	INDIANA U-BLOOMINGTN	M KAISER	ARC	A BRADLEY	NCA 2-615	3983
56	KANSAS ST U	S H GOLDSTEIN	JSC	C S LAYNE	NAG 9-471	4190
56	UNIV LOUISVILLE	C F SAMS	JSC	G SONNENFELD	NAG 9-617	4254
56	UNIV LOUISVILLE	D GOLDWATER	ARC	G SONNENFELD	NCA 2-574	4256
56	LA ST U-BATON ROUGE	H LANE	JSC	G A BRAY	NAG 9-714	4264
56	LA ST U-SHREVEPORT	D L HARM	JSC	J J STEWART	NAG 9-167	4285
56	TULANE UNIV	L I HOCHSTEIN	ARC	E J JOHNSON	NCA 2-660	4299
56	JOHNS HOPKINS UNIV	J K ALEXANDER	HQ	M J SHELHAMER	NAGW 2874	4394
56	BRANDEIS UNIV	D L HARM	JSC	J LACKNER	NAG 9-515	4667
56	HARVARD UNIV	S GOLDSTEIN	JSC	D INGBER	NGT 00-050-874	4745
56	MASS INST OF TECH	N M CINTRON	JSC	R J WURTMAN	NAG 9-144	4856
56	UNIV MASS-AMHERST	F A KUTYNA	JSC	R O ANDRES	NAG 9-291	5007
56	U MICHIGAN-ANN ARBOR	L PUTCHA	JSC	G L AMIDON	NAG 9-465	5156
56	U MICHIGAN-ANN ARBOR	F C OWENS	HQ	G L AMIDON	NGT 00-050-555	5233
56	U MINN-MNPLS-ST PAUL	F C OWENS	HQ	A BEITZ	NGT 00-050-563	5324
56	SAINT LOUIS UNIV	R WHITE	HQ	N C PARTRIDGE	NGT 00-051-145	5377
56	U MISSOURI-COLUMBIA	R JUDAY	JSC	J KNAPP	NAG 9-711	5384
56	MONTANA ST U	R L SAUER	JSC	G A MCFETERS	NAG 9-505	5459
56	PRINCETON UNIV	R WHITE	HQ	C GROSS	NGT 00-051-140	5684
56	U MEDICINE & DENTIST	R BILICA	JSC	J SIEGEL	NAG 9-567	5717
56	U MEDICINE & DENTIST	K NEWKIRK	JSC	P STEIN	NAS 9-17276	5718
56	UNIV NEW MEX	S M FORTNEY	JSC	M L RIEDESEL	NAG 9-401	5793
56	COLUMBIA UNIV	D MORRISON	JSC	B V WORGUL	NAG 9-529	5864
56	CORNELL UNIV	I D LONG	KSC	R J MELKER	NAS10-11880	6005
56	UNIV ROCHESTER	D L TOMKO	ARC	G D PAIGE	NCA 2-618	6217
56	YESHIVA UNIV	D L PIERSON	JSC	H D ISENBERT	NAG 9-573	6223
56	DUKE UNIV	M R POWELL	JSC	R D VANN	NAG 9-134	6233
56	UNIV NC-CHAPEL HILL	S B ARNAUD	ARC	G MECHANIC	NAG 2-181	6336
56	MIAMI UNIV	F KUTYNA	JSC	D E PARKER	NAG 9-446	6555
56	PA ST U-HERSHEY MED.	F A KUTYNA	JSC	K KOCH	NAG 9-118	6931
56	PA ST U-HERSHEY MED.	D K RUSSELL	HQ	W SEVERS	NGT 00-070-327	6933
56	PHIL C PHARMCY & SCI	S GOLDSTEIN	JSC	K J TIETZE	NAG 9-476	7088
56	UNIV PENNSYLVANIA	J M WALIGORA	JSC	C J LAMBERTSEN	NAG 9-597	7094
56	UNIV PENNSYLVANIA	R J WHITE	HQ	C J LAMBERTSEN	NAGW 3628	7097
56	UNIV PENNSYLVANIA	J R GOODIN	KSC	N I BODLER	NAG10-122	7098
56	BENEDICT COLLEGE	F SIX	MSFC	L LOWE	NAG 8-259	7207
56	CLEMSON UNIV-CLEMSON	F H FARMER	LARC	S W SHALSBY	NCC 1-182	7236
56	VANDERBILT UNIV	P A WHITSON	JSC	D ROBERTSON	NAG 9-563	7344
56	VANDERBILT UNIV	R H OTT	HQ	T G WANG	NAGW 1707	7346
56	VANDERBILT UNIV	J VERNIKOS	ARC	D M ROBERTSON	NCC 2-696	7352
56	BAYLOR COL-MEDICINE	V SCHNEIDER	JSC	A LEBLANC	NAG 9-130	7361
56	BAYLOR COL-MEDICINE	J K ALEXANDER	HQ	D CARDUS	NAGW 1691	7362
56	BAYLOR COL-MEDICINE	H LANE	JSC	C ALFREY	NAS 9-14662	7364
56	BAYLOR COL-MEDICINE	F BOOKER	JSC	C P ALFREY	NAS 9-18024	7365
56	BAYLOR COL-MEDICINE	D MORRISON	JSC	M Z ALASSI	NAS 9-18065	7366

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56	BAYLOR COL-MEDICINE	B LEVITAN	JSC	A LEBLANC	NAS 9-18076	7367
56	BAYLOR COL-MEDICINE	A L PLAZA	JSC	A D LEBLANC	NAS 9-18952	7368
56	BAYLOR COL-MEDICINE	R J BOZEMAN	JSC	M E DEBAKEY	NCC 9-23	7369
56	BAYLOR UNIV	L TAGGART	JSC	A LEBLANC	NAG 9-708	7370
56	TX C-OSTEOPATHIC MED	M C GREENISEN	JSC	P B RAVEN	NAG 9-507	7569
56	TX C-OSTEOPATHIC MED	S M FORTNEY	JSC	P B RAVEN	NAG 9-611	7570
56	TX C-OSTEOPATHIC MED	F C OWENS	HQ	P B RAVEN	NGT 00-050-751	7571
56	TEXAS WOMAN'S UNIV	B WOOLFORD	JSC	S M HASSON	NAG 9-579	7584
56	UNIV HOUSTON	R JUDAY	JSC	D S LOSHIN	NAG 9-516	7596
56	U TX MED-GALVESTON	R SAUER	JSC	C A STUART	NAG 9-581	7640
56	U TX MED-GALVESTON	F C OWENS	HQ	M J CORREIA	NGT 00-050-581	7642
56	U TX MED-GALVESTON	F C OWENS	HQ	R M DENNEY	NGT 00-050-736	7643
56	U TX MED-GALVESTON	F C OWENS	HQ	A A PERACHIO	NGT 00-050-748	7644
56	U TX-CTR-SAN ANTONIO	G SPAULDING	JSC	M P MOYER	NAG 9-687	7646
56	UNIV TX-CTR-DALLAS	P A WHITSON	JSC	C Y PAK	NAG 9-152	7657
56	UNIV TX-CTR-DALLAS	S M FORTNEY	JSC	J C BUCKEY	NAG 9-492	7658
56	UNIV TX-CTR-DALLAS	R J WHITE	HQ	C G BLOMQVIST	NAGW 3582	7659
56	UNIV TX-CTR-DALLAS	W YOUNG	JSC	G BLOMQVIST	NAS 9-16044	7660
56	UNIV TX-CTR-DALLAS	C M BUNTIN	JSC	G BLOMQVIST	NAS 9-18139	7661
56	U-TX-CANCER CTR	G SPAULDING	JSC	N R PELLIS	NAG 9-664	7663
56	U-TX-CTR-HOUSTON	R E GRINDELAND	ARC	F W BOOTH	NAG 2-239	7664
56	U-TX-CTR-HOUSTON	J M WALIGORA	JSC	B D BUTLER	NAG 9-215	7665
56	U-TX-CTR-HOUSTON	S POOL	JSC	V SCHNEIDER	NAG 9-335	7666
56	U-TX-CTR-HOUSTON	F A KUTYNA	JSC	J DEFRANCE	NAG 9-413	7667
56	U-TX-CTR-HOUSTON	G SPAULDING	JSC	P C JOHNSON	NAG 9-688	7668
56	U-TX-CTR-HOUSTON	M POWELL	JSC	B BUTLER	NCC 9-20	7670
56	U-TX-CTR-HOUSTON	J ALEXANDER	HQ	B D BUTLER	NGT 00-050-900	7671
56	U TX-AUSTIN	G KLUTE	JSC	R E BARR	NAG 9-588	7727
56	U TX-AUSTIN	R T WHALEN	ARC	M PANDY	NCA 2-532	7769
56	ESTRN VA MED SCHL	T HALSTEAD	HQ	D B SPANGENBERG	NAGW 1784	7948
56	VA COMMONWEALTH UNIV	J SAMOS	LARC	J L PATTERSON	NAG 1-695	8262
56	UNIV WASHINGTON	D L HARM	JSC	D E PARKER	NAG 9-703	8317
56	WASHINGTON ST U	V SCHNEIDER	JSC	P D GOLLNICK	NAG 9-363	8434
56	WEST VIRGINIA UNIV	R E GRINDELAND	ARC	W T STAUBER	NAG 2-590	8452
56	MARQUETTE UNIV	C M WINGET	ARC	R H FITTS	NAG 2-636	8476
56	MARQUETTE UNIV	G W HOFFLER	KSC	R L SCHELLING	NAG10-111	8482
56	UNIV WISC-MADISON	R E GRINDELAND	ARC	A C VAILAS	NAG 2-568	8492
59	ALA A&M UNIV	J L RANDALL	MSFC	R KALE	NAG 8-97	1003
59	UNIV OF ARIZONA	A R HARGERS	ARC	C M TIPTON	NAG 2-392	1330
59	UNIV OF ARIZONA	T HALSTEAD	HQ	R P GRUENER	NAGW 1705	1415
59	UNIV OF ARIZONA	K NEWKIRK	JSC	B S CRISWELL	NAS 9-16838	1510
59	UNIV OF ARIZONA	F C OWENS	HQ	C TIPTON	NGT 00-050-493	1532
59	UNIV OF ARIZONA	R WHITE	HQ	C M TIPTON	NGT 00-051-092	1549
59	UNIV OF ARIZONA	F C OWENS	HQ	M E TISCHLER	NGT 00-070-203	1555
59	SAN FRANCISCO ST U	G C CARLE	ARC	J B ORENBERG	NCC 2-672	1793
59	SAN FRANCISCO ST U	J B POLLACK	ARC	J MONTEVERDI	NCC 2-727	1794
59	SAN FRANCISCO ST U	G C CARLE	ARC	J B ORENBERG	NCC 2-808	1795
59	UNIV CALIF-DAVIS	S B ARNAUD	ARC	R B MARTIN	NAG 2-649	2219
59	UNIV CALIF-DAVIS	S M HING	ARC	C A FULLER	NAG 2-795	2223
59	UNIV CALIF-DAVIS	L J WILLIAMS	HQ	A Y CHEER	NAGW 2369	2239
59	UNIV CAL-LOS ANGELES	P X CALLAHAN	ARC	P S COWINGS	NCC 2-804	2445
59	UNIV CAL-SAN DIEGO	R J WHITE	HQ	S L MILLER	NAGW 2881	2550
59	UNIV CAL-SAN DIEGO	C DAVIS	JSC	C WEST	NAS 9-16037	2575
59	UNIV CAL-SAN DIEGO	V ELLERBE	JSC	J B WEST	NAS 9-18764	2576
59	U CAL-SAN FRANCISCO	K E NEWKIRK	JSC	C D ARMAUD	NAS 9-16227	2609
59	U CAL-SAN FRANCISCO	L C KEIL	ARC	D J RAMSAY	NCC 2-194	2614
59	COLORADO ST U	K NEWKIRK	JSC	M J FETTMAN	NAS 9-18735	2776
59	UNIV COL-BOULDER	W A ORAN	HQ	M LUTTGES	NAGW 1197	2904
59	GEORGE WASHINGTON U	F SULZMAN	HQ	J LOGSDON	NAGW 2498	3182
59	GEORGE WASHINGTON U	M SHEPANAK	HQ	F R DUTCHER	NASW 4324	3186

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59	FLORIDA A&M UNIV	M MARGOLIS	HQ	K REDDA	NGT10-40900	3262
59	UNIV FLORIDA	W M KNOTT	KSC	R A YOST	NAG10-102	3403
59	UNIV CHICAGO	I D BROWNE	JSC	S R SUTTON	NAG 9-106	3809
59	UNIV ILLINOIS URBANA	C C JOHNSON	ARC	P C HARRISON	NAG 2-772	3889
59	PURDUE UNIV	R J WHITE	HQ	C A MITCHELL	NAGW 2329	4032
59	TULANE UNIV	T W HALSTEAD	HQ	C D FERMIN	NAGW 1516	4298
59	JOHNS HOPKINS UNIV	J K ALEXANDER	HQ	L SCHULTHEIS	NAGW 3056	4398
59	U MARYLAND-BALTIMORE	R J WHITE	HQ	W P COLEMAN	NAGW 2649	4439
59	MASS INST OF TECH	M BUNTIN	JSC	L R YOUNG	NAS 9-16523	4939
59	MASS INST OF TECH	K NEWKIRK	JSC	L R YOUNG	NAS 9-18734	4941
59	GRAND VALLEY ST U	F SIX	MSFC	W A CHREN	NAG 8-226	5064
59	U MICHIGAN-ANN ARBOR	D BLANCHARD	JSC	A W ENGLAND	NAG 9-489	5157
59	U MEDICINE & DENTIST	A PLAZA	JSC		NAS 9-18775	5719
59	COLUMBIA UNIV	C YANG	JSC	D J BRENNER	NAG 9-621	5865
59	COLUMBIA UNIV	T HALSTEAD	HQ	D J WOLGEMUTH	NAGW 1579	5869
59	CORNELL UNIV	M M AVERNER	HQ	S A LEVIN	NAGW 2938	5991
59	MT SINAI S-MED-CUNY	J P CONNOLLY	ARC	B COHEN	NAG 2-573	6034
59	RENSSELAER POLY INST	G C CARLE	ARC	J P FERRIS	NCC 2-766	6081
59	ST U OF NY-ALBANY	P LAFFERTY	JSC	L FARHI	NAS 9-16042	6120
59	ST U OF NY-ALBANY	G C CARLE	ARC	T W SCATTERGOOD	NCC 2-395	6123
59	ST U NY-STONY BROOK	T HALSTEAD	HQ	A D KRIKORIAN	NAGW 1529	6168
59	UNIV ROCHESTER	R J WHITE	HQ	T W CLARKSON	NAGW 2356	6213
59	EAST CAROLINA UNIV	J H STOKLOSA	HQ	D M TERRIAN	NAGW 2927	6250
59	OHIO ST U	J L GOODING	JSC	P K GALLAGER	NAG 9-707	6597
59	OHIO UNIV	J M ORASANU	ARC	C E MCCOY	NCC 2-827	6638
59	WRIGHT ST U	F D EVANS	HQ	S MOHLER	NGT36-24790	6784
59	OREGON ST U	L HOCHSTEIN	ARC	B R SIMONEIT	NCA 2-600	6841
59	OREGON ST U	F C OWENS	HQ	T LOMAX	NGT 00-050-455	6850
59	DREXEL UNIV	R A SCHIFFER	HQ	D R BROOKE	NAGW 3738	6913
59	TEXAS SOUTHERN UNIV	C T BOURLAND	JSC	S M AHMED	NAG 9-325	7574
59	UNIV HOUSTON	G R COULTER	HQ	I WOLINSKY	NAGW 3191	7622
59	UNIV HOUSTON	R E GRINDELAND	ARC	S B ARNAUD	NCC 2-801	7624
59	U TX-DALLAS	K NEWKIRK	JSC	J BUCKEY	NAS 9-18736	7826
59	UTAH ST U	W BERRY	ARC	B BUGBEE	NCA 2-662	7900
59	VA COMMONWEALTH UNIV	W J YOUNG	JSC	D L ECKBERG	NAS 9-16046	8265
59	WASHINGTON ST U	R SAUER	JSC	R J BULL	NAG 9-545	8435
59	MARSHALL UNIV	F SULZMAN	HQ	G A DUDLEY	NAGW 3435	8447
59	SHEPHERD COLLEGE	T HALSTEAD	HQ	D HENRY	NAGW 1878	8448
59	MARQUETTE UNIV	V ELLERBEE	JSC	R H FITTS	NAS 9-18768	8483
59	UNIV WISC-MADISON	D S MCKAY	JSC	N A DUFFIE	NAG 9-615	8548
59	UNIV WISC-MADISON	J K ALEXANDER	HQ	J M NORMAN	NAGW 1575	8552
61	NEW YORK UNIV	A AHUMADA	ARC	M PAVEL	NCA 2-587	6044
61	MIAMI UNIV	F C OWENS	HQ	D E PARKER	NGT 00-050-427	6556
61	VILLANOVA UNIV	R W REMINGTON	ARC	C L FOLK	NCA 2-491	7137
61	VILLANOVA UNIV	R REMINGTON	ARC	C L FOLK	NCA 2-797	7138
61	BROWN UNIV	B KANKI	ARC	P LIEBERMAN	NCA 2-796	7175
62	UNIV OF ARIZONA	B KANKI	ARC	S CONLEY	NCA 2-783	1514
62	UNIV CAL-SAN DIEGO	L TOBIAS	ARC	E L HUTCHINS	NAG 2-873	2482
62	UNIV CAL-SAN DIEGO	E A PALMER	ARC	D A NORMAN	NCC 2-591	2580
62	UNIV SOUTHERN CALIF	B G KANKI	ARC	J C TAYLOR	NCC 2-812	2737
62	UNIV MIAMI	H C FOUSHEE	ARC	E L WIENER	NCC 2-581	3443
62	NORTHWESTERN UNIV	B G KANKI	ARC	M T PALMER	NCC 2-773	3767
62	UNIV ILLINOIS URBANA	B G KANKI	ARC	C D WICKENS	NCA 2-616	3938
62	HARVARD UNIV	H C FOUSHEE	ARC	J R HACKMAN	NCC 2-457	4720
62	U TX-AUSTIN	B G KANKI	ARC	R L HELMREICH	NCC 2-286	7770
69	CAL ST UNIV-HAYWARD	M M COHEN	ARC	A E STOPER	NCC 2-529	1733
69	SAN JOSE ST U	R K DISMUKES	ARC	K JORDAN	NCC 2-327	1833
69	SAN JOSE ST U	R K DISMUKES	ARC	K P JORDAN	NCC 2-798	1847
69	STANFORD UNIV	A J AHUMADA	ARC	B A WANDELL	NCC 2-307	1975
69	UNIV CALIF-BERKELEY	R B WELCH	ARC	L STARK	NCC 2-757	2178



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69	UNIV CALIF-DAVIS	S M CASNER	ARC	R A HESS	NCC 2-819	2270
69	UNIV CAL-LOS ANGELES	R COMSTOCK	LARC	M B STERMAN	NAG 1-1068	2317
69	UNIV CAL-LOS ANGELES	L C SHELTER	ARC	R GELMAN	NCC 2-826	2446
69	U CAL-SANTA CRUZ	C E WADE	ARC	B BRIDGEMAN	NCC 2-763	2693
69	U CAL-SANTA CRUZ	M K KAISER	ARC	B BRIDGEMAN	NCC 2-814	2694
69	UNIV DENVER	R J SHIVELY	ARC	R J ROBERTS	NAG 2-737	3084
69	HOWARD UNIV	B G KANKI	ARC	E J LANGER	NCC 2-708	3211
69	CATHOLIC UNIV	A T POPE	LARC	R PARASURAMAN	NAG 1-1296	3220
69	GEORGIA INST OF TECH	R J SHIVELY	ARC	A KIRLIK	NAG 2-656	3497
69	UNIV ILLINOIS URBANA	S G HART	ARC	C D WICKENS	NAG 2-308	3884
69	UNIV ILLINOIS URBANA	S G HART	ARC	N MORAY	NAG 2-567	3885
69	UNIV ILLINOIS URBANA	D C FOYLE	ARC	C WICKENS	NAG 2-735	3887
69	UNIV ILLINOIS URBANA	S G HART	ARC	P M SANDERSON	NAG 2-738	3888
69	UNIV ILLINOIS URBANA	K CORKER	ARC	C D WICKENS	NCC 2-632	3944
69	UNIFORMED SERVICES U	F C OWENS	HQ	N E GRUNBERG	NGT 00-050-611	4435
69	HARVARD UNIV	A T POPE	LARC	E J LANGER	NAG 1-1345	4674
69	MASS INST OF TECH	K M CORKER	ARC	T B SHERIDAN	NAG 2-729	4774
69	MASS INST OF TECH	E M WENZEL	ARC	N I PURLACH	NCC 2-771	4949
69	U MINN-MNPLS-ST PAUL	S G HART	ARC	P A HANCOCK	NAG 2-749	5274
69	UNIV NEBRASKA-OMAHA	K CORKER	ARC	C E MCCOY	NCA 2-701	5500
69	NEW YORK UNIV	A T POPE	LARC	E R JOHN	NAG 1-1448	6038
69	ST U OF NY-BUFFALO	K H ABBOTT	LARC	V L SHALIN	NAG 1-1342	6137
69	OHIO ST U	C T SNYDER	ARC	C E BILLINGS	NAG 2-810	6560
69	OHIO ST U	E A PALMER	ARC	P J SMITH	NCC 2-615	6620
69	OREGON GRADUATE CTR	A J AHUMADA	ARC	M PAVEL	NCC 2-811	6803
69	CARNEGIE-MELLON UNIV	R W REWINGTON	ARC	B E JOHN	NAG 2-634	6870
69	PA ST U.-UNIV. PARK	A T POPE	LARC	M J RAY	NAG 1-1441	6952
69	PA ST U.-UNIV. PARK	F C OWENS	HQ	R M STERN	NGT 00-070-129	7082
69	PA ST U.-UNIV. PARK	E PRIOR	LARC	W J RAY	NGT 00-070-299	7085
69	UNIV HOUSTON	R T SAVELY	JSC	D S JOHNSON	NAG 9-555	7602
69	C-WILLIAM AND MARY	A T POPE	LARC	P L DERKS	NCC 1-160	7939
69	GEORGE MASON UNIV	J R BURLEY	LARC	D LITTMAN	NAG 1-1425	7949
69	OLD DOMINION UNIV	A T POPE	LARC	F G FREEMAN	NCC 1-176	8036
69	OLD DOMINION UNIV	E PRIOR	LARC	G COATES	NGT 00-050-986	8042
69	UNIV VIRGINIA	M K KAISER	ARC	D R PROFFITT	NAG 2-721	8076
69	UNIV VIRGINIA	M K KAISER	ARC	D R PROFFITT	NAG 2-812	8077
69	UNIV VIRGINIA	M K KAISER	ARC	D PROFFITT	NCA 2-708	8119
69	UNIV WISC-MADISON	E M WENZEL	ARC	F L WIGHTMAN	NCC 2-542	8602
69	ISRAEL INST OF TECH	S G HART	HQ	D GOPHER	NAGW 1128	8680
69	UNIV CANTERBURY	W W JOHNSON	ARC	D OWEN	NAGW 2170	8685
72	UNIV SOUTH CAROLINA	C L HILL	SSC	D J COWEN	NAS13-449	7256
73	GEORGE WASHINGTON U	S D FRIES	HQ	J M LOGSDON	NASW 4412	3187
73	AMERICAN UNIV	R D LAUNIUS	HQ	H MC CURDY	NASW 4798	3217
76	PA ST U.-UNIV. PARK	D GALLAWAY	HQ	M K HEID	NGT 00-051-010	7074
76	TEXAS SOUTHERN UNIV	G JOHNSON	JSC	W W BARNETT	NAG 9-456	7576
79	NEW MEX ST U-LAS CR	D RUSSELL	HQ	V GHOO	NGT 00-070-341	5772
79	CASE WESTERN RES U	R L REAMES	LERC	D A KOLB	NCC 3-90	6414
79	OHIO UNIV	C D FORMAN	LERC	S GYSEGAN	NCC 3-271	6641
79	TEXAS A&I UNIV	L M ARMENDARIZ	JSC	J L KIMBALL	NAG 9-682	7460
79	UNIV HOUSTON	C M HOSKINS	JSC	R D ALO	NAG 9-565	7605
79	UNIV VIRGINIA	D K RUSSELL	HQ	D BALL	NGT 00-070-365	8165
79	VA PLOY INST & ST U	P BACON	HQ	J LAPORTE	NGT 00-050-988	8244
99	AUBURN UNIV	L J SMITH	MSFC	J OWEN	NAS 8-39131	1039
99	OAKWOOD COLLEGE	D RUSSELL	HQ	E A COOPER	NGT 00-090-073	1057
99	TUSKEGEE UNIV	S E MASSENBERG	HQ	W A HILL	NAGW 2940	1063
99	TUSKEGEE UNIV	S STOVALL-ALEXANDER	HQ	S JEELANI	NAGW 3472	1064
99	UNIV ALA-HUNTSVILLE	F SIX	MSFC	J C WRIGHT	NAG 8-172	1097
99	UNIV ALA-HUNTSVILLE	C R CHAPPELL	MSFC	A H YELLE	NAG 8-178	1098
99	UNIV ALA-HUNTSVILLE	F SIX	MSFC	J C WRIGHT	NAG 8-210	1099
99	UNIV ALA-HUNTSVILLE	L J SMITH	MSFC	W W VAUGHN	NAS 8-36955	1145

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99	UNIV ALA-HUNTSVILLE	L J SMITH	MSFC	W W VAUGHAN	NAS 8-38609	1152
99	UNIV ALA-HUNTSVILLE	J R RICHARDSON	MSFC	B J SCHROER	NCC 8-18	1159
99	UNIV ALA-HUNTSVILLE	E T SCHWARTZ	HQ	C A LUNDQUIST	NGT 00-040-010	1164
99	UNIV ALA-HUNTSVILLE	D K RUSSELL	HQ	J GIBSON	NGT 00-090-120	1178
99	UNIV ALA-UNIV	F SIX	MSFC	M FREEMAN	NAG 8-123	1186
99	UNIV ALA-UNIV	D GALLAWAY	HQ	D W SUNAI	NAGW 3072	1195
99	UNIV ALA-UNIV	D K RUSSELL	HQ	G SINGLETON	NGT 00-090-224	1200
99	UNIV ALASKA-FAIRBNKS	E T SCHWARTZ	HQ	J G HAWKINS	NGT 00-040-022	1246
99	ARIZONA ST U	D A OLMSTEAD	HQ	J E MAISEL	NAGW 2389	1295
99	NAVAJO COMMUNITY COL	B WHITE	HQ	T GORMAN-KEITH	NAGW 2732	1316
99	UNIV OF ARIZONA	A J TUYAHOV	HQ	P SLATER	NAGW 896	1397
99	UNIV OF ARIZONA	M BICAY	HQ	F LOW	NAGW 2489	1451
99	UNIV OF ARIZONA	G ASRAR	HQ	P R HOUSER	NGT 00-030-136	1522
99	UNIV OF ARIZONA	G ASRAR	HQ	J RANGER-MOORE	NGT 00-030-181	1524
99	UNIV OF ARIZONA	G ASRAR	HQ	J A REAGAN	NGT 00-030-215	1525
99	UNIV OF ARIZONA	E T SCHWARTZ	HQ	E LEVY	NGT 00-040-006	1526
99	UNIV ARK-LITTLE ROCK	E T SCHWARTZ	HQ	G M NORTHROP	NGT 00-040-036	1567
99	CALIF INST OF TECH	D A OLMSTEAD	HQ	P MESSINA	NAGW 2353	1636
99	CALIF INST OF TECH	D J RUSSELL	HQ	J HOPEFIELD	NGT 00-070-335	1702
99	CALIF INST OF TECH	D K RUSSELL	HQ	E ZUKOSKIN	NGT 00-090-175	1703
99	CAL ST UNIV-CHICO	D CONRAD	LERC	J WRIGHT	NAS 3-26127	1735
99	CAL ST U-NORTHRIDGE	D K RUSSELL	HQ	S OPPENHEIMER	NGT 00-090-111	1755
99	D-Q UNIV	A HATCH	ARC	A LOUFAS	NAGW 3335	1757
99	FOOTHILL COLLEGE	M LANE	ARC	M CONWAY	NCA 2-724	1759
99	FOOTHILL COLLEGE	S S LONGCHAMPS	ARC	M CONWAY	NCA 2-725	1760
99	FOOTHILL COLLEGE	M A LANE	ARC	M CONWAY	NGT 2-1001	1761
99	FOOTHILL-DEANZ SYS	S S LONGCHAMPS	ARC	M CONWAY	NGT 2-1002	1764
99	LOYOLA MARYMOUNT U	F SIX	MSFC	J SANNY	NAG 8-275	1766
99	LOYOLA MARYMOUNT U	D K RUSSELL	HQ	A SMULDERS	NGT 00-090-141	1767
99	NAT HISPANIC UNIV	E L BUGNA	ARC	R D PARKER	NCC 2-735	1768
99	NAT HISPANIC UNIV	E BUGNA	ARC	R PARKER	NGT 00-090-067	1769
99	SAN JOSE ST U	S STANLEY	ARC	R SHOEMAKER	NCA 2-178	1808
99	SAN JOSE ST U	R L PIKE	ARC	N BUSSANI	NCA 2-295	1809
99	SAN JOSE ST U	L A MILOV	ARC	S K GIBSON	NCA 2-555	1810
99	SAN JOSE ST U	T B CLAUSEN	ARC	J BEARD	NCA 2-756	1820
99	STANFORD UNIV	C STOKER	ARC	E LEVINTHAL	NCA 2-688	1953
99	STANFORD UNIV	G ASRAR	HQ	V S INAN	NGT 00-030-156	1995
99	STANFORD UNIV	D K RUSSELL	HQ	N LOZANO	NGT 00-090-112	2032
99	STANFORD UNIV	D K RUSSELL	HQ	N LOZANO	NGT 00-090-222	2033
99	UNIV CALIF-BERKELEY	H W JONES	ARC	F SHU	NCC 2-36	2172
99	UNIV CALIF-BERKELEY	S R ELLIS	ARC	L STARK	NCC 2-86	2173
99	UNIV CALIF-BERKELEY	B WHITE	HQ	M DIAMOND	NGT 00-090-039	2214
99	UNIV CALIF-DAVIS	D K RUSSELL	HQ	R CRIDDLE	NGT 00-090-152	2277
99	UNIV CALIF-DAVIS	D K RUSSELL	HQ	R CRIDDLE	NGT 00-090-153	2278
99	UNIV CALIF-IRVINE	D RUSSELL	HQ	F HERMES	NGT 00-090-071	2314
99	UNIV CALIF-IRVINE	D K RUSSELL	HQ	F HERMES	NGT 00-090-173	2315
99	UNIV CAL-LOS ANGELES	G ASRAR	HQ	S M ANDERSON	NGT 00-030-148	2448
99	UNIV CAL-SAN DIEGO	G CLAYTON	HQ	G R BURBIDGE	NAGW 1737	2526
99	UNIV CAL-SAN DIEGO	T GALLINA	KSC	S K RIDE	NCC10-7	2588
99	UNIV CAL-SAN DIEGO	E T SCHWARTZ	HQ	J ARNOLD	NGT 00-040-005	2591
99	U CAL-SANTA BARBARA	A J TUYAHOV	HQ	J E ESTES	NAGW 1743	2628
99	U CAL-SANTA BARBARA	G ASRAR	HQ	A GERSHUNOV	NGT 00-030-145	2658
99	U CAL-SANTA CRUZ	D K RUSSELL	HQ	R E SLATER	NGT 00-090-178	2698
99	UNIV REDLANDS	D K RUSSELL	HQ	L SANDLER	NGT 00-090-150	2699
99	UNIV SOUTHERN CALIF	D A OLMSTEAD	HQ	R M GAGLIARDI	NAGW 2390	2719
99	UNIV SOUTHERN CALIF	F E PENARANDA	HQ	R STARK	NASW 4680	2733
99	UNIV SOUTHERN CALIF	G ASRAR	HQ	T DICKEY	NGT 00-030-180	2739
99	UNIV SOUTHERN CALIF	D K RUSSELL	HQ	L YATES	NGT 00-090-142	2741
99	UNIV SOUTHERN CALIF	D K RUSSELL	HQ	L YATES	NGT 00-090-171	2742
99	COLORADO ST U	G ASRAR	HQ	R H JOHNSON	NGT 00-030-190	2785

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99	UNIV COL-BOULDER	J W KIERIER	HQ	R BYERLY	NAGW 1105	2900
99	UNIV COL-BOULDER	J W KIEBLER	HQ	P F MACDORAN	NAGW 1865	2916
99	UNIV COL-BOULDER	G ASRAR	HQ	R J GOSNELL	NGT 00-030-139	3019
99	UNIV COL-BOULDER	E T SCHWARTZ	HQ	E R HANSEN	NGT 00-040-008	3026
99	UNIV DENVER	E P CONDON	ARC	J C WILSON	NCC 2-666	3090
99	UNIV HARTFORD	F SIX	MSFC	L NAGURNEY	NAG 8-274	3109
99	UNIV HARTFORD	E T SCHWARTZ	HQ	A L PIERCE	NGT 00-040-037	3110
99	YALE UNIV	C M LEE	LERC	L D PFETTERLE	NAG 3-996	3114
99	YALE UNIV	D K RUSSELL	HQ	R WEBER	NGT 00-090-113	3143
99	UNIV DELAWARE	G ASRAR	HQ	J S GREENE	NGT 00-030-098	3159
99	UNIV DELAWARE	G ASRAR	HQ	J SONG	NGT 00-030-126	3160
99	UNIV DELAWARE	E T SCHWARTZ	HQ	N F NESS	NGT 00-040-023	3161
99	CORCORON SCHL OF ART	M HALEM	GSFC	S TWEEDY	NAG 5-1679	3165
99	GALLAUDET COLLEGE	D RUSSELL	HQ	G MCGAUGHRAN	NGT 00-090-057	3168
99	GALLAUDET COLLEGE	D RUSSELL	HQ	A NISSEN	NGT 00-090-074	3169
99	GALLAUDET COLLEGE	D RUSSELL	HQ	G MCGAUGHRAN	NGT 00-090-075	3170
99	GALLAUDET COLLEGE	D K RUSSELL	HQ	G MCGAUGHRAN	NGT 00-090-182	3171
99	GEORGETOWN UNIV	S G TILFORD	HQ	R A SCRIBNER	NAGW 3202	3197
99	HOWARD UNIV	D MENCHAN	GSFC	M C WOODARD	NCA 5-107	3210
99	HOWARD UNIV	D V GALLAWAY	HQ	M W THOMPSON	NGT 00-010-002	3212
99	HOWARD UNIV	E T SCHWARTZ	HQ	J B HALPERN	NGT 00-040-024	3213
99	HOWARD UNIV	A S MCGEE	HQ	D N FAN	NGT 9-11060	3215
99	UNIV DIST COLUMBIA	M S MARGOLIS	HQ	W R COLEMAN	NAGW 2216	3239
99	BREVARD COMMUNITY C	B MARTIN	KSC	D L PULKET	NAG10-114	3240
99	EMBRY-RIDDLE AERO U	T M WALSH	LARC	D J GARLAND	NAG 1-1430	3242
99	FLA INTERNATIONAL U	D K RUSSELL	HQ	J NAVLAKHA	NGT 00-090-147	3250
99	FLA INTERNATIONAL U	D K RUSSELL	HQ	J NAVLAKHA	NGT 00-090-148	3251
99	FLORIDA A&M UNIV	S E MASSENBERG	HQ	J A JOHNSON	NAGW 2930	3255
99	FLORIDA A&M UNIV	W A MAULL	HQ	W E GLENN	NASW 4557	3256
99	FLORIDA A&M UNIV	D K RUSSELL	HQ	E R TOSSIE	NGT 00-090-107	3260
99	FLORIDA A&M UNIV	D K RUSSELL	HQ	E R TOSSIE	NGT 00-090-181	3261
99	FLORIDA ATLANTIC U	V CEVENINI	HQ	W GLENN	NAGW 2778	3273
99	FLORIDA ATLANTIC U	P ELFREY	KSC	E SKELLINGS	NAG10-108	3277
99	FLORIDA ATLANTIC U	R CAIMI	KSC	Y K LIN	NCC10-5	3279
99	FLORIDA INST OF TECH	R C RAPSON	KSC	J M RUSSELL	NAG10-89	3285
99	FLORIDA ST U	D K RUSSELL	HQ	T J HARRISON	NGT 00-090-108	3339
99	UNIV OF CENTRAL FLA	J G ENGLAND	KSC	L A ANDERSON	NAG10-96	3347
99	UNIV OF CENTRAL FLA	N E SILWG	KSC	J M RAGUSA	NAG10-115	3350
99	UNIV OF CENTRAL FLA	T S BARTH	KSC	W W SWART	NAG10-118	3353
99	UNIV OF CENTRAL FLA	J S BARTH	KSC	W W SWART	NAG10-119	3354
99	UNIV OF CENTRAL FLA	C DELAUNE	KSC	F GOMEZ	NAG10-120	3355
99	UNIV OF CENTRAL FLA	T DAVIS	KSC	S L RICE	NCC10-3	3359
99	UNIV OF CENTRAL FLA	D K RUSSELL	HQ	J A SMITH	NGT 00-090-121	3364
99	UNIV OF CENTRAL FLA	D K RUSSELL	HQ	J SMITH	NGT 00-090-122	3365
99	UNIV OF CENTRAL FLA	D K RUSSELL	HQ	J SMITH	NGT 00-090-170	3367
99	UNIV FLORIDA	E RHODES	KSC	J DUFFY	NAG10-109	3404
99	UNIV FLORIDA	F E PENARANDA	HQ	J R THORNTON	NASW 4676	3406
99	UNIV FLORIDA	E T SCHWARTZ	HQ	M A ELSENBERG	NGT 00-040-015	3410
99	UNIV SOUTH FLORIDA	J K O MALLEY	KSC	R A CRANE	NAG10-76	3458
99	UNIV SOUTH FLORIDA	D K RUSSELL	HQ	J O'SHIELDS	NGT 00-090-103	3468
99	CLARK ATLANTA UNIV	M S MARGOLIS	HQ	E A MINTZ	NAGW 2939	3473
99	GEORGIA INST OF TECH	E T SCHWARTZ	HQ	D A PETERS	NGT 00-040-013	3547
99	GEORGIA INST OF TECH	D K RUSSELL	HQ	L R HOWARD	NGT 00-090-080	3568
99	GEORGIA INST OF TECH	D K RUSSELL	HQ	L R HOWARD	NGT 00-090-081	3569
99	GEORGIA INST OF TECH	D K RUSSELL	HQ	L R HOWARD	NGT 00-090-082	3570
99	GEORGIA INST OF TECH	D K RUSSELL	HQ	L HOWARD	NGT 00-090-167	3571
99	GEORGIA INST OF TECH	D RUSSELL	HQ	L HOWARD	NGT 00-090-199	3572
99	GEORGIA INST OF TECH	D K RUSSELL	HQ	L HOWARD	NGT 00-090-200	3573
99	GEORGIA INST OF TECH	D RUSSELL	HQ	L HOWARD	NGT 00-090-201	3574
99	GEORGIA INST OF TECH	D K RUSSELL	HQ	L HOWARD	NGT 00-090-202	3575

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FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
99	GA SOUTHWESTERN COL	F SIX	MSFC	J P MANKER	NAG 8-271	3578
99	SPELMAN COLLEGE	D RUSSELL	HQ	E FALCONER	NGT 00-090-072	3589
99	SPELMAN COLLEGE	D RUSSELL	HQ	E FALCONER	NGT 00-090-089	3590
99	SPELMAN COLLEGE	D RUSSELL	HQ	E FALCONER	NGT 00-090-090	3591
99	SPELMAN COLLEGE	D RUSSELL	HQ	E FALCONER	NGT 00-090-091	3592
99	SPELMAN COLLEGE	D RUSSELL	HQ	E FALCONER	NGT 00-090-092	3593
99	SPELMAN COLLEGE	D RUSSELL	HQ	E FALCONER	NGT 00-090-093	3594
99	SPELMAN COLLEGE	D RUSSELL	HQ	E FALCONER	NGT 00-090-094	3595
99	SPELMAN COLLEGE	D RUSSELL	HQ	E FALCONER	NGT 00-090-095	3596
99	SPELMAN COLLEGE	D RUSSELL	HQ	E FALCONER	NGT 00-090-096	3597
99	SPELMAN COLLEGE	D K RUSSELL	HQ	E FALCONER	NGT 00-090-185	3598
99	SPELMAN COLLEGE	D K RUSSELL	HQ	E FALCONER	NGT 00-090-186	3599
99	SPELMAN COLLEGE	D RUSSELL	HQ	E FALCONER	NGT 00-090-187	3600
99	UNIV HAWAII-MANOA	E T SCHWARTZ	HQ	P MOUGINIS-MARK	NGT 00-040-020	3703
99	UNIV IDAHO	L KEFFER	HQ	T ARMSTRONG	NGT 00-040-038	3720
99	ILL INST OF TECH	D RUSSELL	HQ	J ORNELAS	NGT 00-090-076	3726
99	ILL INST OF TECH	D RUSSELL	HQ	J ORNELAS	NGT 00-090-077	3727
99	ILL INST OF TECH	D RUSSELL	HQ	J ORNELAS	NGT 00-090-078	3728
99	ILL INST OF TECH	D RUSSELL	HQ	J ORNELAS	NGT 00-090-079	3729
99	ILL INST OF TECH	D K RUSSELL	HQ	J ORNELAS	NGT 00-090-146	3730
99	ILL INST OF TECH	D RUSSELL	HQ	J ORNELAS	NGT 00-090-179	3731
99	ILL WESLEYAN UNIV	F SIX	MSFC	U	NAG 8-268	3732
99	PARKS C-ST LOUIS U	F SIX	MSFC	C E MONFORT	NAG 8-267	3776
99	UNIV ILLINOIS URBANA	M M CONNORS	ARC	E DOUCHIN	NAG 2-666	3886
99	UNIV ILLINOIS URBANA	G ASRAR	HQ	J W WEATHERLY	NGT 00-030-112	3948
99	UNIV ILLINOIS URBANA	E T SCHWARTZ	HQ	K R SIVIER	NGT 00-040-017	3949
99	UNIV ILLINOIS URBANA	M S MARGOLIS	HQ	J E GRIVES	NGT 00-090-062	3961
99	UNIV ILLINOIS URBANA	B L WHITE	HQ	J GIRVES	NGT 00-090-066	3962
99	EARLHAM COLLEGE	F SIX	MSFC	R HIRELY	NAG 8-266	3965
99	PURDUE UNIV	E T SCHWARTZ	HQ	A F GRANDT	NGT 00-040-025	4048
99	PURDUE UNIV	D K RUSSELL	HQ	M MARTINEZ	NGT 00-090-138	4066
99	DRAKE UNIV	F SIX	MSFC	A MARSTON	NAG 8-264	4089
99	IOWA ST U	E SCHWARTZ	HQ	W W SANDERS	NGT 00-040-018	4126
99	IOWA ST U	D K RUSSELL	HQ	A CAMPBELL	NGT 00-090-123	4139
99	UNIV KANSAS	G ASRAR	HQ	C TSATSOULIS	NGT 00-030-189	4224
99	UNIV KANSAS	E T SCHWARTZ	HQ	D R DOWNING	NGT 00-040-026	4226
99	CENTRE COLLEGE	F SIX	MSFC	J KIREKE	NAG 8-191	4240
99	UNIV KENTUCKY	E SCHWARTZ	HQ	R HACKNEY	NGT 00-040-049	4248
99	LA ST U-BATON ROUGE	G ASRAR	HQ	K G HENDERSON	NGT 00-030-183	4278
99	LA ST U-BATON ROUGE	E T SCHWARTZ	HQ	J P WEFEL	NGT 00-040-039	4279
99	LA ST U-BATON ROUGE	D K RUSSELL	HQ	A STERLING	NGT 00-090-197	4283
99	LA ST U-BATON ROUGE	D K RUSSELL	HQ	A STERLING	NGT 00-090-198	4284
99	LOUISIANA TECH UNIV	D RUSSELL	HQ	J NELSON	NGT 00-090-195	4286
99	LOUISIANA TECH UNIV	D RUSSELL	HQ	J NELSON	NGT 00-090-196	4287
99	SOUTHERN U & A&M COL	O A GUTIERREZ	HQ	R L FORD	NAGW 3041	4289
99	SOUTHERN U & A&M COL	A B KAHN	HQ	J N HUBBELL	NASW 4231	4290
99	SOUTHERN U & A&M COL	D K RUSSELL	HQ	D BAGAYOKO	NGT 00-090-118	4293
99	SOUTHERN U & A&M COL	D K RUSSELL	HQ	D BAGAYOKO	NGT 00-090-119	4294
99	TULANE UNIV	D K RUSSELL	HQ	S SULLIVAN	NGT 00-090-223	4303
99	JOHNS HOPKINS UNIV	E T SCHWARTZ	HQ	R C HENRY	NGT 00-040-004	4420
99	LOYOLA COLLEGE	G ASRAR	HQ	G FEELEY-HARNIK	NGT 00-030-209	4426
99	MORGAN ST U	D K RUSSELL	HQ	E DELOATCH	NGT 00-090-116	4432
99	MORGAN ST U	D K RUSSELL	HQ	E DELOATCH	NGT 00-090-117	4433
99	P G COMMUNITY COL	D MENCHAN	GSFC	P A CUNNIFF	NGT 00-090-158	4434
99	U MARYLAND BALT-PROF	S E MASSENBERG	LARC	F A HRABOYSKI	NAG 1-1172	4436
99	U MARYLAND-BALTIMORE	D K RUSSELL	HQ	E BAKER	NGT 00-090-137	4441
99	U MARYLAND-BALTIMORE	R LANG	LARC	F HRABOYSKI	NGT 00-090-155	4442
99	U MARYLAND-BALTIMORE	D K RUSSELL	HQ	E BAKER	NGT 00-090-180	4443
99	UNIV MD-COLLEGE PARK	K BERGMAN	HQ	J SHUKLA	NAGW 2661	4554
99	UNIV MD-COLLEGE PARK	V CEVENINI	HQ	J BARAS	NAGW 2777	4561

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FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
99	UNIV MD-COLLEGE PARK	D K RUSSELL	HQ	M C RABENHORST	NGT 00-070-321	4628
99	HARVARD UNIV	G ASRAR	HQ	M S MCELROY	NGT 00-030-182	4734
99	HARVARD UNIV	D K RUSSELL	HQ	M HOMER	NGT 00-090-172	4752
99	MASS INST OF TECH	C RAY	HQ	A F WITT	NAGW 3079	4911
99	MASS INST OF TECH	G ASRAR	HQ	A M MACDONALD	NGT 00-030-151	4960
99	MASS INST OF TECH	E T SCHWARTZ	HQ	D E HASTINGS	NGT 00-040-001	4961
99	MASS INST OF TECH	D K RUSSELL	HQ	J JACKSON	NGT 00-090-149	4978
99	MASS INST OF TECH	D K RUSSELL	HQ	J JACKSON	NGT 00-090-208	4979
99	MASS INST OF TECH	D K RUSSELL	HQ	J JACKSON	NGT 00-090-209	4980
99	MASS INST OF TECH	D K RUSSELL	HQ	J JACKSON	NGT 00-090-210	4981
99	MASS INST OF TECH	D K RUSSELL	HQ	J JACKSON	NGT 00-090-211	4982
99	MASS INST OF TECH	D K RUSSELL	HQ	J JACKSON	NGT 00-090-212	4983
99	MASS INST OF TECH	D K RUSSELL	HQ	J JACKSON	NGT 00-090-213	4984
99	MASS INST OF TECH	D K RUSSELL	HQ	J JACKSON	NGT 00-090-231	4985
99	UNIV MASS-AMHERST	G ASRAR	HQ	A W PAYLOR	NGT 00-030-101	5027
99	UNIV MASS-AMHERST	G ASRAR	HQ	J D ISHAM	NGT 00-030-149	5028
99	DELTA COLLEGE	M PHELPS	HQ	H ARMAN	NAGW 3208	5062
99	EASTERN MICHIGAN U	D GALLAWAY	HQ	J BARNES	NAGW 3073	5063
99	MICHIGAN ST U	W M KNOTT	KSC	R S BANDURSKI	NAG10-67	5077
99	MICHIGAN ST U	D K RUSSELL	HQ	M KEMP	NGT 00-070-316	5081
99	MICHIGAN TECH U	G ASRAR	HQ	A N PILANT	NGT 00-030-128	5096
99	U MICHIGAN-ANN ARBOR	S FLOYD	GSFC	J TROMBKA	NAS 5-31200	5211
99	U MICHIGAN-ANN ARBOR	G ASRAR	HQ	L L GEZON	NGT 00-030-103	5226
99	U MICHIGAN-ANN ARBOR	E T SCHWARTZ	HQ	J G ELSLEY	NGT 00-040-007	5228
99	U MICHIGAN-ANN ARBOR	D K RUSSELL	HQ	N H MCCLAMROCH	NGT 00-090-207	5249
99	MANKATO ST U	F SIX	MSFC	J HAKKILA	NAG 8-192	5265
99	U MINN-MNPLS-ST PAUL	G ASRAR	HQ	R J WEBER	NGT 00-030-111	5319
99	U MINN-MNPLS-ST PAUL	E T SCHWARTZ	HQ	P W WEIBLER	NGT 00-040-027	5321
99	U MINN-DULUTH	R ROMERO	LERC	T B HOLST	NAG 3-1367	5332
99	JACKSON ST U	M MARGOLIS	HQ	R SULLIVAN	NGT 00-090-034	5337
99	MISSISSIPPI STATE U	C M HOSKINS	JSC	M D TRYMAN	NAG 9-624	5357
99	UNIV MISSISSIPPI-U	E T SCHWARTZ	HQ	M R DINGERSON	NGT 00-040-028	5372
99	WASHINGTON UNIV	D DAVIS	KSC	R E MORLEY	NAG10-107	5444
99	WASHINGTON UNIV	E T SCHWARTZ	HQ	R E ARVIDSON	NGT 00-040-029	5447
99	MONTANA ST U	E T SCHWARTZ	HQ	W A HISCOCK	NGT 00-040-041	5464
99	U NEBRASKA-LINCOLN	G ASRAR	HQ	T L MOTE	NGT 00-030-127	5497
99	UNIV NEBRASKA-OMAHA	L KEFFER	HQ	B B BOWEN	NGT 00-040-051	5501
99	U NEVADA-LAS VEGAS	E T SCHWARTZ	HQ	J V TARANIK	NGT 00-040-042	5507
99	UNIV NEW HAMP-DURHAM	E T SCHWARTZ	HQ	D S BARHETT	NGT 00-040-030	5606
99	PRINCETON UNIV	G ASRAR	HQ	S G PHILANDER	NGT 00-030-197	5679
99	PRINCETON UNIV	D K RUSSELL	HQ	H MCCULLOCH	NGT 00-090-226	5686
99	STEVENS INST OF TECH	E T SCHWARTZ	HQ	D RICHMAN	NGT 00-040-032	5716
99	NEW MEX HIGHLANDS U	B WHITE	HQ	H JENSEN	NGT 00-090-070	5721
99	NEW MEX INST MINING	M NIEDNER	GSFC	F KUELLMER	NAS 5-33038	5728
99	NEW MEX ST U-LAS CR	E T SCHWARTZ	HQ	S HORAN	NGT 00-040-019	5767
99	NEW MEX ST U-LAS CR	D K RUSSELL	HQ	P HYNES	NGT 00-090-114	5773
99	NEW MEX ST U-LAS CR	D K RUSSELL	HQ	P HYNES	NGT 00-090-115	5774
99	NEW MEX ST U-LAS CR	D K RUSSELL	HQ	P HYNES	NGT 00-090-161	5775
99	UNIV NEW MEX	D P HUENEMOERDER	HQ	S PRASUD	NAGW 2530	5796
99	UNIV NEW MEX	R BIVINS	HQ	S A MORAIN	NASW 4191	5801
99	UNIV NEW MEX	D K RUSSELL	HQ	M LEE	NGT 00-090-221	5808
99	CITY COL OF NEW YORK	F SIX	MSFC	G G GOSS	NAG 8-261	5816
99	CITY COL OF NEW YORK	B WHITE	HQ	C WATKINS	NGT 00-090-056	5819
99	COLUMBIA UNIV	R STACHNIK	HQ	C MARTIN	NAGW 2593	5884
99	COLUMBIA UNIV	G ASRAR	HQ	R G FAIRBANKS	NGT 00-030-162	5905
99	COLUMBIA UNIV	G ASRAR	HQ	D M PETEET	NGT 00-030-177	5908
99	COLUMBIA UNIV	G ASRAR	HQ	R G FAIRBANKS	NGT 00-030-185	5909
99	CORNELL UNIV	M D BICAY	HQ	S V BECKWITH	NAGW 2733	5987
99	CORNELL UNIV	E T SCHWARTZ	HQ	P J GIERASCH	NGT 00-040-012	6010
99	CORNELL UNIV	D K RUSSELL	HQ	K PHILLIPS	NGT 00-090-228	6029

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FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
99	HUNTER COLLEGE	D K RUSSELL	HQ	G KRASILOVSKY	NGT 00-090-151	6032
99	RENSSELAER POLY INST	E ANDERSON	HQ	L RUBENFELD	NAGW 2316	6073
99	RENSSELAER POLY INST	L P JETER	MSFC	H WEIDEMEIER	NAS 8-38143	6079
99	RENSSELAER POLY INST	L JETER	MSFC	H WIEDEMER	NAS 8-39723	6080
99	RENSSELAER POLY INST	D K RUSSELL	HQ	N BURNETT	NGT 00-090-131	6093
99	RENSSELAER POLY INST	D K RUSSELL	HQ	N BURNETT	NGT 00-090-132	6094
99	RENSSELAER POLY INST	D K RUSSELL	HQ	D TUTT	NGT 00-090-133	6095
99	RENSSELAER POLY INST	D K RUSSELL	HQ	N BURNETT	NGT 00-090-134	6096
99	RENSSELAER POLY INST	D RUSSELL	HQ	N BURNETT	NGT 00-090-188	6097
99	RENSSELAER POLY INST	D K RUSSELL	HQ	N BURNETT	NGT 00-090-189	6098
99	ST U NY-BINGHAMTON	F C OWENS	HQ	H PATTEE	NGT 00-050-556	6134
99	ST U NY-STONY BROOK	B WHITE	HQ	M ADAMS	NAGW 3206	6179
99	DUKE UNIV	D K RUSSELL	HQ	E H DOWELL	NGT 00-090-166	6248
99	FAYETTEVILLE ST U	D K RUSSELL	HQ	L EDWARDS	NGT 00-090-124	6254
99	GUILFORD COLLEGE	F SIX	MSFC	C ALMY	NAG 8-223	6255
99	NO CAROLINA A&T ST U	S E MASSENBERG	LARC	L SHARPE	NAG 1-956	6256
99	NO CAROLINA A&T ST U	S E MASSENBERG	LARC	C LEE	NAG 1-1289	6259
99	NO CAROLINA A&T ST U	S E MASSENBERG	HQ	S Y LAO	NAGW 2924	6266
99	NO CAROLINA A&T ST U	S E MASSENBERG	LARC	L SHARPE	NAS 1-19157	6267
99	NO CAROLINA A&T ST U	D K RUSSELL	HQ	L SHARPE	NGT 00-090-083	6269
99	NO CAROLINA A&T ST U	D K RUSSELL	HQ	L SHARPE	NGT 00-090-084	6270
99	NO CAROLINA A&T ST U	D K RUSSELL	HQ	L SHARPE	NGT 00-090-085	6271
99	NO CAROLINA A&T ST U	D K RUSSELL	HQ	L SHARPE	NGT 00-090-086	6272
99	NO CAROLINA A&T ST U	D K RUSSELL	HQ	L SHARPE	NGT 00-090-087	6273
99	NO CAROLINA A&T ST U	D K RUSSELL	HQ	L SHARPE	NGT 00-090-088	6274
99	NC ST U.-RALEIGH	L KEFFER	HQ	G N WALBERG	NGT 00-040-031	6325
99	NC ST U.-RALEIGH	D K RUSSELL	HQ	R TURNER	NGT 00-090-126	6330
99	NC ST U.-RALEIGH	D K RUSSELL	HQ	R TURNER	NGT 00-090-225	6331
99	PEMBROKE ST U	D K RUSSELL	HQ	A LOCKLEAR	NGT 00-090-135	6332
99	PEMBROKE ST U	D K RUSSELL	HQ	A LOCKLEAR	NGT 00-090-136	6333
99	WINSTON-SALEM ST U	D RUSSELL	HQ	W ATKINSON	NGT 00-090-050	6354
99	TURTLE MNTN COMTY C	B WHITE	HQ	S KARNAWAT	NAGW 3620	6356
99	UNIV NORTH DAKOTA	E T SCHWARTZ	HQ	C A WOOD	NGT 00-040-043	6359
99	CASE WESTERN RES U	G C MADZSAR	LERC	C C LIU	NAG 3-1149	6381
99	CASE WESTERN RES U	K A VARIS	LERC	R M MASON	NAG 3-1495	6398
99	CASE WESTERN RES U	W A ORAN	HQ	J F WALLACE	NAGW 1193	6404
99	CASE WESTERN RES U	L JETER	MSFC	D MATTHIESEN	NAS 8-39695	6407
99	CASE WESTERN RES U	L JETER	MSFC	D MATTHIESEN	NAS 8-39722	6408
99	CASE WESTERN RES U	D RUSSELL	HQ	M BOULDING	NGT 00-090-177	6474
99	CLEVELAND ST U	D E LACY	LERC	P C CHARITY	NAG 3-1511	6492
99	CUYAHOGA COMMUNITY C	D E LACY	LERC	S K BECKER	NAG 3-1509	6536
99	CUYAHOGA COMMUNITY C	R L BONDURANT	LERC	S CHAND	NCC 3-323	6539
99	OHIO ST U	S W FOGLEMAN	HQ	J D KRAUS	NAGW 750	6598
99	UNIV AKRON	R F LAWRENCE	LERC	B MCCLAIN	NAG 3-1189	6660
99	UNIV CINCINNATI	R F LAWRENCE	LERC	E N PRATHER	NAG 3-1188	6701
99	OKLAHOMA ST U	L B BILBROUGH	HQ	K WIGGINS	NASW 4516	6785
99	OKLAHOMA ST U	L BILBROUGH	HQ	K WIGGINS	NCCW 5	6786
99	UNIV OKLAHOMA-NORMAN	E T SCHWARTZ	HQ	K L HOVING	NGT 00-040-052	6800
99	OREGON ST U	D A OLMSTEAD	HQ	M R ABBOTT	NAGW 2339	6819
99	OREGON ST U	E T SCHWARTZ	HQ	D R CALDWELL	NGT 00-040-033	6848
99	BRYN MAWR COLLEGE	D RUSSELL	HQ	J MILLER	NGT 00-090-183	6867
99	CARNEGIE-MELLON UNIV	T GRAHAM	KSC	W L WHITTAKER	NAG10-95	6882
99	CARNEGIE-MELLON UNIV	D RUSSELL	HQ	R KAIL	NGT 00-090-184	6901
99	PA ST U.-UNIV. PARK	I S SMITH	GSFC	I R HARRISON	NAG 5-643	6980
99	PA ST U.-UNIV. PARK	W A ORAN	HQ	W HYMER	NAGW 1196	7019
99	PA ST U.-UNIV. PARK	G ASRAR	HQ	K L O'BRIEN	NGT 00-030-152	7061
99	PA ST U.-UNIV. PARK	L T KEFFER	HQ	R DEVON	NGT 00-040-002	7062
99	PA ST U.-UNIV. PARK	F C OWENS	HQ	K HEID	NGT 00-050-393	7065
99	PA ST U.-UNIV. PARK	D K RUSSELL	HQ	D DAVIS	NGT 00-090-130	7087
99	UNIV PITTSBURGH	F E PENARANDA	HQ	L S HUMMEL	NASW 4677	7124

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99	BROWN UNIV	E T SCHWARTZ	HQ	P H SCHULTZ	NGT 00-040-034	7176
99	CLEMSON UNIV-CLEMSON	E T SCHWARTZ	HQ	L M DUNCAN	NGT 00-040-045	7237
99	CLEMSON UNIV-CLEMSON	D K RUSSELL	HQ	S J LASSER	NGT 00-090-109	7242
99	CLEMSON UNIV-CLEMSON	D K RUSSELL	HQ	S J LASSER	NGT 00-090-110	7243
99	CLEMSON UNIV-CLEMSON	D RUSSELL	HQ	S LASSER	NGT 00-090-192	7244
99	CLEMSON UNIV-CLEMSON	D K RUSSELL	HQ	S LASSER	NGT 00-090-193	7245
99	CLEMSON UNIV-CLEMSON	D RUSSELL	HQ	S LASSER	NGT 00-090-194	7246
99	CLEMSON UNIV-CLEMSON	D RUSSELL	HQ	S LASSER	NGT 00-090-220	7247
99	COL OF CHARLESTON	E T SCHWARTZ	HQ	M W COLGAN	NGT 00-040-055	7249
99	UNIV SOUTH CAROLINA	D K RUSSELL	HQ	M SUTTON	NGT 00-090-145	7257
99	SO DAKOTA SCHL MINES	G ASRAR	HQ	S A CHRISTOPHER	NGT 00-030-142	7265
99	SO DAKOTA SCHL MINES	E T SCHWARTZ	HQ	P L SMITH	NGT 00-040-046	7266
99	SO DAKOTA SCHL MINES	D K RUSSELL	HQ	F CAMPONE	NGT 00-090-139	7267
99	SOUTH DAKOTA ST U	F SIX	MSFC	S SCHILLER	NAG 8-258	7268
99	TENNESSEE ST U	D K RUSSELL	HQ	S DEVGAN	NGT 00-090-127	7293
99	VANDERBILT UNIV	E T SCHWARTZ	HQ	H M STRAUSS	NGT 00-040-021	7354
99	RICE UNIV	D K RUSSELL	HQ	R STABELL	NGT 00-090-140	7450
99	RICE UNIV	D K RUSSELL	HQ	R STABELL	NGT 00-090-165	7451
99	RICE UNIV	D K RUSSELL	HQ	R STABELL	NGT 00-090-219	7452
99	TEXAS A&M UNIV	D K RUSSELL	HQ	W D TURNER	NGT 00-090-128	7552
99	TEXAS A&M UNIV	D K RUSSELL	HQ	W D TURNER	NGT 00-090-129	7553
99	TEXAS A&M UNIV	D RUSSELL	HQ	W D TURNER	NGT 00-090-168	7554
99	TEXAS A&M UNIV	D K RUSSELL	HQ	W D TURNER	NGT 00-090-169	7555
99	TEXAS A&M UNIV	D RUSSELL	HQ	W D TURNER	NGT 00-090-190	7556
99	TEXAS A&M UNIV	D K RUSSELL	HQ	W D TURNER	NGT 00-090-191	7557
99	TEXAS A&M UNIV	D K RUSSELL	HQ	W D TURNER	NGT 00-090-217	7558
99	TEXAS A&M UNIV	D K RUSSELL	HQ	W D TURNER	NGT 00-090-218	7559
99	TEXAS A&M UNIV-SYSTM	F E PEWARANDA	HQ	G SERA	NASW 4679	7566
99	TEXAS SOUTHMOST COL	L ARMENDARIZ	JSC	L V LOF	NAGW 3060	7578
99	UNIV HOUSTON	J D ATKINSON	JSC	J M BENNETT	NAG 9-658	7614
99	UNIV HOUSTON	D RUSSELL	HQ	G F PASKUSZ	NGT 00-090-176	7634
99	U TX-PAN AMERICAN	D K RUSSELL	HQ	W SHOCKLEY	NGT 00-090-101	7652
99	U TX-PAN AMERICAN	D K RUSSELL	HQ	W SHOCKLEY	NGT 00-090-102	7653
99	U TX-PAN AMERICAN	D K RUSSELL	HQ	W C SHOCKLEY	NGT 00-090-162	7654
99	U TX-PAN AMERICAN	D K RUSSELL	HQ	W C SHOCKLEY	NGT 00-090-163	7655
99	U TX-PAN AMERICAN	D RUSSELL	HQ	W C SHOCKLEY	NGT 00-090-164	7656
99	U HOUSTON-CLEAR LAKE	S H GOLDSTEIN	JSC	G B FREEDMAN	NAG 9-569	7672
99	U HOUSTON-CLEAR LAKE	K E HENDERSON	JSC	P BISHOP	NAG 9-660	7674
99	U TX-AUSTIN	N B DOUGLAS	HQ	B D TAPLEY	NAGW 1834	7740
99	U TX-AUSTIN	R J GUNDERMAN	LERC	W J VOGEL	NAS 3-26403	7766
99	U TX-AUSTIN	G S LEE	ARC	G KOZMETSKY	NCC 2-787	7773
99	U TX-AUSTIN	W J HUFFSTETLER	JSC	G KOZMETSKY	NCC 9-22	7775
99	U TX-AUSTIN	G ASRAR	HQ	A SLUYTER	NGT 00-030-129	7777
99	U TX-AUSTIN	E T SCHWARTZ	HQ	B D TAPLEY	NGT 00-040-003	7780
99	U TX-AUSTIN	D K RUSSELL	HQ	E ARMENDARIZ	NGT 00-090-097	7807
99	U TX-AUSTIN	D K RUSSELL	HQ	S KONRADI	NGT 00-090-216	7808
99	U TX-EL PASO	B WHITE	HQ	A LOPEZ	NGT 00-090-044	7843
99	U TX-EL PASO	D K RUSSELL	HQ	A LOPEZ	NGT 00-090-125	7844
99	U TEXAS-SAN ANTONIO	D K RUSSELL	HQ	L R WILLIAMS	NGT 00-090-098	7852
99	U TEXAS-SAN ANTONIO	D K RUSSELL	HQ	L R WILLIAMS	NGT 00-090-099	7853
99	U TEXAS-SAN ANTONIO	D K RUSSELL	HQ	L R WILLIAMS	NGT 00-090-100	7854
99	UNIV UTAH	W C STAMPER	HQ	R PUGMIRE	NAGW 3687	7875
99	UTAH ST U	E T SCHWARTZ	HQ	F J REDD	NGT 00-040-014	7902
99	U VERMONT & ST AGR C	L KEFFER	HQ	W D LAKIN	NGT 00-040-054	7912
99	CHRISTOPHER NWPORT C	S E MASSENBERG	LARC	F HARTLINE	NAG 1-1182	7914
99	CHRISTOPHER NWPORT C	R LANG	LARC	F HARTLINE	NGT 00-090-156	7922
99	C-WILLIAM AND MARY	E J PRIOR	LARC	D E KRANBUEHL	NAS 1-18347	7930
99	C-WILLIAM AND MARY	T L ST. CLAIR	LARC	R A ORWOLL	NCC 1-150	7936
99	HAMPTON UNIV	S E MASSENBERG	LARC	P F MOLIN	NAG 1-1185	7973
99	HAMPTON UNIV	R L YANG;	LARC	N	NAS 1-19935	7978

# NASA'S UNIVERSITY PROGRAM

## APPENDIX - CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	AGREEMENT NUMBER	ACC NO.
99	NORFOLK ST U	F SIX	MSFC	L MATTIX	NAG 8-257	7989
99	OLD DOMINION UNIV	E T SCHWARTZ	HQ	M L SANDY	NGT 00-040-009	8038
99	OLD DOMINION UNIV	D K RUSSELL	HQ	E J CROSS	NGT 00-090-143	8057
99	OLD DOMINION UNIV	D K RUSSELL	HQ	E J CROSS	NGT 00-090-144	8058
99	THOMAS NELSON CMTY C	R YANG	LARC	S FINCKE	NGT-00-023-000	8060
99	UNIV VIRGINIA	D K RUSSELL	HQ	R JENNINGS	NGT 00-090-214	8166
99	VA PLOY INST & ST U	D A OLMSTEAD	HQ	W L STUTZMAN	NAGW 2335	8224
99	VA PLOY INST & ST U	E J PRIOR	LARC		NAS 1-19610	8227
99	VA PLOY INST & ST U	D K RUSSELL	HQ	R BURDISO	NGT 00-070-360	8253
99	VA PLOY INST & ST U	D K RUSSELL	HQ	J NOTTINGHAM	NGT 00-090-104	8254
99	VA PLOY INST & ST U	D K RUSSELL	HQ	J NOTTINGHAM	NGT 00-090-105	8255
99	VA PLOY INST & ST U	D K RUSSELL	HQ	J NOTTINGHAM	NGT 00-090-106	8256
99	VA PLOY INST & ST U	D RUSSELL	HQ	J NOTTINGHAM	NGT 00-090-203	8257
99	VA PLOY INST & ST U	D RUSSELL	HQ	J NOTTINGHAM	NGT 00-090-204	8258
99	VA PLOY INST & ST U	D RUSSELL	HQ	J NOTTINGHAM	NGT 00-090-205	8259
99	VA PLOY INST & ST U	D RUSSELL	HQ	J NOTTINGHAM	NGT 00-090-206	8260
99	VA PLOY INST & ST U	D K RUSSELL	HQ	J NOTTINGHAM	NGT 00-090-215	8261
99	VA COMMONWEALTH UNIV	D RUSSELL	HQ	J BERLUND	NGT 00-090-174	8266
99	UNIV WASHINGTON	H MIURA	ARC	E LIVNE	NAG 2-723	8284
99	UNIV WASHINGTON	G ASRAR	HQ	S E YUTER	NGT 00-030-100	8402
99	UNIV WASHINGTON	G ASRAR	HQ	D L WORTHEN	NGT 00-030-110	8403
99	UNIV WASHINGTON	G ASRAR	HQ	W T WELCH	NGT 00-030-123	8405
99	UNIV WASHINGTON	E T SCHWARTZ	HQ	G K PARKS	NGT 00-040-011	8408
99	FAIRMONT STATE COL	F SIX	MSFC	M S CANLON	NAG 8-255	8446
99	WEST VIRGINIA UNIV	E T SCHWARTZ	HQ	J T JUVEWICZ	NGT 00-040-047	8460
99	WHEELING JESUIT COL	F DURSO	HQ	T ACKER	NAGW 2486	8470
99	WHEELING JESUIT COL	F X DURSO	HQ	T S ACKER	NAGW 3110	8471
99	WHEELING JESUIT COL	M V PHELPS	HQ	C D MILLER	NCCW 12	8472
99	WHEELING JESUIT COL	J ROOT	HQ	L W RIVERS	NCCW 14	8473
99	MARQUETTE UNIV	F SIX	MSFC	J RICHIE	NAG 8-256	8480
99	UNIV WISC-MADISON	G ASRAR	HQ	R G WAGNER	NGT 00-030-113	8609
99	UNIV WISC-MILWAUKEE	E T SCHWARTZ	HQ	G T MOORE	NGT 00-040-035	8625
99	UNIV WYOMING	E T SCHWARTZ	HQ	P E JOHNSON	NGT 00-040-050	8642
99	U PUERTO RICO-MAYAGZ	E T SCHWARTZ	HQ	J G GONZALES	NGT 00-040-053	8652
99	UNIV TURABO	R YANG	LARC	U C DAWES	NGT 00-090-157	8667
99	UNIV CHILE	W J BODIN	GSFC	E DIAZ	NAS 5-1925	8674







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